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NATURAL HISTORY

OF

BIRDS, FISH,

INSECTS AND REPTILES.

EMBELLISHED

With upwards of Two Hundred ENGRAVINGS.

IN FIVE VOLUMES.

VOL. III.

LONDON:

PRINTED BY J. S. BARR,
BRIDGES-STREET, COVENT-GARDEN.

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NATURAL HISTORY

OF THE

ISLANDS OF THE INDIAN ARCHIPELAGO

BY

JOHN EDWARD SMITH, F.R.S.

IN FIVE VOLUMES

VOL. III.

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the last Volume.

NATURAL HISTORY
OF
BIRDS, FISH, REPTILES, &c.

OF SMALL BIRDS OF THE CRANE KIND.

THE variety of birds which come under this description are exceedingly numerous in this and almost every other clime; Brisson has enumerated more than one hundred, some authors have stated them to amount to near three; but out of that number many are found to differ only in the length of their body, the colour of some particular feathers, or some such slight distinction. In their manners and habits, however, they are very similar, so much so indeed that we might almost assert that the characteristics of one would nearly exhibit the Natural History of the whole, and therefore it is that we shall follow the example of a modern author, and speak of their nature and habits in

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general, to avoid that tedious repetition which would inevitably occur, by treating of them as they related to each bird individually, at least of such as are known; for notwithstanding the laborious researches of the most eminent naturalists, there remains a multiplicity of the feathered race, natives of both the old and new continents, of which no particulars have been acquired beyond their figure, size, and plumage. Many cabinets have been selected by the curious, and who to each bird have been able to apply a name by the assistance of the nomenclators, but by doing of which it has not unfrequently happened that two very distinct birds, from a similarity of plumage, have gone under one common appellation in two different collections, and which kind of error must certainly continue to occur among those with whom we are so little acquainted; nor would such circumstances have ever been of any consequence, had not some of the owners commenced authors, and thus erroneously handed them down to posterity, to the no small perplexity of those who make an investigation into the varieties of nature their study. Added to this is the practice of the exhibitors of birds and beast, who from ignorance, or from motives
of

of interest, give an animal that name which they think most likely to answer their purpose; a fact which frequently occurred to M. de Buffon, and who gives it as his opinion that many species have been thus multiplied by mere varieties. Such being the case, the entering into a tedious description of a long list, of which nothing but their names and colours are known, could be very little satisfactory; for in this tribe we should find them almost as numerous as in the sparrow, and many of their pretended distinctions being only different shades in their plumage. The most particular, however, we shall point out, after having given in the words of a celebrated author, a general view of their habits and manners.

“ All the birds in this class possess many
“ marks in common; though some have peculiarities that deserve regard. They are all
“ bare of feathers above the knee, or above
“ the heel, as some naturalists chuse to express
“ it. In fact, that part which I call the knee,
“ if compared with the legs of mankind, is
“ analogous to the heel: but, as it is commonly conceived otherwise, I have conformed to the general apprehension. I say, therefore, that all these birds are bare of feathers
“ above

“ above the knee ; and in some they are want-
“ ing half way up the thigh. The nudity in
“ that part, is partly natural, and partly pro-
“ duced by all birds of this kind habitually
“ wading in water. The older the bird, the
“ the barer are its thighs ; yet even the young
“ ones have not the same downy covering
“ reaching so low as the birds of any other
“ class. Such a covering there would rather
“ be prejudicial, as being continually liable to
“ get wet in the water.

“ As these birds are usually employed rather
“ in running than in flying, and as their food
“ lies entirely upon the ground, and not on
“ trees, or in the air, so they run with great
“ swiftness for their size, and the length of their
“ legs assists their velocity. But as, in seeking
“ their food, they are often obliged to change
“ their station ; so also are they equally swift
“ of wing, and traverse immense tracts of
“ country without much fatigue.

“ It has been thought by some, that a part
“ of this class lived upon an oily slime, found
“ in the bottoms of ditches and of weedy pools ;
“ they were thence termed, by Willoughby,
“ Mud-suckers ; but later discoveries have
“ shewn that, in these places, they hunt for the
“ caterpillars

“ caterpillars, worms, and insects. From
“ hence, therefore, we may generally assert,
“ that all birds of this class live upon animals
“ of one kind or another. The long billed
“ birds suck up worms and insects from the
“ bottom; and those furnished with shorter
“ bills, pick up such insects as lie nearer the
“ surface of the meadow, or among the sands
“ on the sea-shore.

“ Thus the curlew, the wood-cock, and the
“ snipe, are ever seen in plashy brakes, and
“ under covered hedges, assiduously employed
“ in seeking out insects in their worm state;
“ and it should seem, from their plumpness,
“ that they find a plentiful supply. Nature,
“ indeed, has furnished them with very con-
“ venient instruments for procuring this kind
“ of food. Their bills are made sufficiently
“ long for searching; but still more, they are
“ endowed with an exquisite sensibility at the
“ point, for feeling their provisions. They are
“ furnished with no less than three pair of
“ nerves, equal almost to the optic nerves in
“ thickness; which pass from the roof of the
“ mouth, and run along the upper chap to the
“ point.

“ Nor

“ Nor are those with shorter bills, and desti-
“ tute of such convenient instruments, without
“ a proper provision made for procuring their
“ subsistence. The lapwing, the sand-piper
“ and the red-shank, run with surprising rapi-
“ dity along the surface of the marsh or the sea-
“ shore, quarter their ground with great dexte-
“ rity, and leave nothing of the insect kind that
“ happens to lie on the surface. These, how-
“ ever, are neither so fat nor so delicate as the
“ former; as they are obliged to toil more for
“ a subsistence, they are easily satisfied with
“ whatever offers; and their flesh often con-
“ tracts a relish from what has been their
“ latest, or their principal food.

“ Most of the birds formerly described, have
“ stated seasons for feeding and rest: the eagle
“ kind prowl by day, and at evening repose;
“ and the owl kind by night, keeping unseen
“ in the day-time. But these birds, of the
“ crane kind, seem at all hours employed; they
“ are seldom at rest by day; and, during the
“ whole night season, every meadow and marsh
“ resounds with their different calls, to court-
“ ship or to food. This seems to be the time
“ when they least fear interruption from man;
“ and at this season, they appear more affidu-
“ duously

“ously employed, both in providing for their
“present support, and continuing that of poster-
“rity. But unfortunately for them, this is also
“the season when the insidious fowler steals in
“upon their occupations, and fills the whole
“meadow with terror and destruction.

“As all of this kind live entirely in waters,
“or at least among watry places, they seem pro-
“vided by Nature with a warmth of constitu-
“tion to fit them for that cold element. They
“reside, by choice, in the coldest climates;
“and as other birds migrate here in our sum-
“mer, their migrations hither are mostly in the
“winter. Even those that reside among us the
“whole season, retire in summer to the tops of
“our bleakest mountains; where they breed,
“and bring down their young, when the cold
“weather sets in.

“Most of them, however, migrate, and re-
“tire to the polar regions; as those that remain
“behind in the mountains, and keep with us
“during summer, bear no proportion to the
“quantity which in winter haunt our marshes
“and low grounds. The snipe sometimes builds
“here; and the nest of the curlew is sometimes
“found in the plashees of our hills: but the
“number of these is very small; and it is most
“probable

“probable that they are only some stragglers
“who, not having strength or courage sufficient for the general voyage, take up from
“necessity their habitation here.

“In general, during summer, this whole class
“either chuse the coldest countries to retire to,
“or the coldest and the moistest part of ours to
“breed in. The curlew, the wood-cock, the
“snipe, the godwit, the grey plover, the green,
“and the long-legged plover, the knot and the
“turnstone, are rather the guests than the natives of this island. They visit us in the beginning of winter, and forsake us in the spring. They then retire to the mountains of Sweden, Poland, Prussia, and Lapland, to breed. Our country, during the summer season, becomes uninhabitable to them. The ground parched up by the heat; the springs dried away; and the vermicular insects already upon the wing; they have no means of subsisting. Their weak and delicately pointed bills are unfit to dig into a resisting soil; and their prey is departed, though they were able to reach its retreats. Thus, that season when Nature is said to teem with life, and to put on her gayest liveries, is to them an interval of sterility and famine. The coldest
“mountains

" mountains of the north are then a preferable
 " habitation; the marshes there are never to-
 " tally dried up; and the insects are in such
 " abundance, that, both above ground and un-
 " derneath, the country swarms with them. In
 " such retreats, therefore, these birds would
 " continue always, but that the frosts, when
 " they set in, have the same effect upon the
 " face of the landscape, as the heats of summer.
 " Every brook is stiffened into ice; all the earth
 " is congealed into one solid mass; and the birds
 " are obliged to forsake a region where they
 " can no longer find subsistence.

" Such are our visitants. With regard to
 " those which keep with us continually, and
 " breed here, they are neither so delicate in
 " their food, nor perhaps so warm in their con-
 " stitutions. The lapwing, the ruff, the red-
 " shank, the sandpiper, the sea-pie, the Nor-
 " folk plover, and the sea-lark, breed in this
 " country, and, for the most part, reside here.
 " In summer they frequent such marshes as are
 " not dried up in any part of the year; the
 " Essex hundreds, and the fens of Lincolnshire.
 " There in solitudes, formed by surrounding
 " marshes, they breed and bring up their young.
 " In winter they come from their retreats, ren-

“dered uninhabitable by the flooding of the
“waters; and seek their food about our ditches
“and marshy meadow-grounds. Yet even of
“this class, all are wanderers upon some occa-
“sions; and take wing to the northern cli-
“mates, to breed and find subsistence. This
“happens when our summers are peculiarly
“dry; and when the fenny countries are not
“sufficiently watered to defend their retreats.

“But though this be the usual course of Na-
“ture, with respect to these birds, they often
“break through the general habits of their
“kind; and as the lapwing, the ruff, and the
“sandpiper, are sometimes seen to alter their
“manners, and to migrate from hence, instead
“of continuing to breed here; so we often find
“the wood-cock, the snipe and the curlew,
“reside with us during the whole season, and
“breed their young in different parts of the
“country. In Casewood, about two miles
“from Tunbridge, as Mr. Pennant assures us,
“some wood-cocks are seen to breed annually.
“The young have been shot there in the be-
“ginning of August: and were as healthy and
“vigorous as they are with us in winter, though
“not so well tasted. On the Alps, and other
“high mountains, says Willoughby, the wood-
“cock

“cock continues all summer. I myself have
“flushed them on the top of Mount Jura,
“in June and July. The eggs are long, of
“a pale red colour, and stained with deeper
“spots and clouds. The nests of the curlew
“and the snipe are frequently found; and some
“of these perhaps never entirely leave this
“island.

“Thus it appears that the same habits are in
“some measure common to all; but in nestling,
“and bringing up their young, one method
“takes place universally. As they all run and
“feed upon the ground, so they are all found
“to nestle there. The number of eggs gene-
“rally to be seen in every nest, is from two to
“four; never under, and very seldom exceed-
“ing. The nest is made without any art; but
“the eggs are either laid in some little depres-
“sion of the earth, or on a few bents and long
“grass, that scarcely preserves them from the
“moisture below. Yet such is the heat of the
“body of these birds, that the time of their in-
“cubation is shorter than with any other of the
“same size. The magpie, for instance, takes
“twenty-one days to hatch its young, but the
“lapwing takes but fourteen. Whether the
“animal oil, with which these birds abound;

“ gives them this superior warmth, I cannot
“ tell, but there is no doubt of their quick in-
“ cubation.

“ In their seasons of courtship, they pair as
“ other birds ; but not without violent contests
“ between the males, for the choice of the fe-
“ male. The lapwing and the plover are often
“ seen to fight among themselves ; but there is
“ one little bird of this tribe, called the *ruff*,
“ that has got the epithet of the *fighter*, merely
“ from its great perseverance and animosity on
“ these occasions. In the beginning of spring,
“ when these birds arrive among our marshes,
“ they are observed to engage with desperate
“ fury against each other ; it is then that the
“ fowlers, seeing them intent on mutual de-
“ struction, spread their nets over them, and
“ take them in great numbers. Yet even in
“ captivity their animosity still continues : the
“ people that fat them up for sale, are obliged
“ to shut them up in close dark rooms ; for
“ if they let ever so little light in among them
“ the turbulent prisoners instantly fall to fight-
“ ing with each other, and never cease till one
“ has killed its antagonist, especially, says Wil-
“ loughby, if any body stands by. A similar
“ animosity, though in a less degree, prompts
“ all

“all this tribe; but when they have paired,
“and begun to lay, their contentions are then
“over.

“The place these birds chiefly chuse to breed
“in, is in some island surrounded with sedgy
“moors, where men seldom resort; and in such
“situations I have often seen the ground so
“strewed with eggs and nests, that one could
“scarce take a step, without treading upon some
“of them. As soon as a stranger intrudes upon
“these retreats, the whole colony is up, and an
“hundred different screams are heard from
“every quarter. The arts of the lapwing to
“allure men or dogs from her nest, are per-
“fectly amusing. When she perceives the
“enemy approaching, she never waits till they
“arrive at her nest, but boldly runs to meet
“them: When she has come as near them as
“she dares to venture, she then rises with a
“loud screaming before them, seeming as if
“she were just flushed from hatching; while
“she is then probably a hundred yards from
“the nest. Thus she flies, with great cla-
“mour and anxiety, whining and screaming
“round the invaders, striking at them with her
“wings, and fluttering as if she were wounded.
“To add to the deceit, she appears still more
“clamorous

“clamorous, as more remote from the nest.
“If she sees them very near, she then seems
“to be quite unconcerned, and her cries cease,
“while her terrors are really augmenting. If
“there be dogs, she flies heavily at a little distance
“before them, as if maimed; still vociferous
“and still bold, but never offering to
“move towards the quarter where her treasure
“is deposited. The dog pursues, in hopes
“every moment of seizing the parent, and by
“this means actually loses the young; for the
“cunning bird, when she has thus drawn him
“off to a proper distance, then puts forth her
“powers, and leaves her astonished pursuer to
“gaze at the rapidity of her flight. The eggs
“of all these birds are highly valued by the luxurious;
“they are boiled hard, and thus served
“up, without any further preparation.

“As the young of this class are soon hatched,
“so, when excluded, they quickly arrive at maturity.
“They run about after the mother as
“soon as they leave the egg; and being covered
“with a thick down, want very little of that
“clutching which all birds of the poultry kind
“that follow the mother, indispensably require.
“They come to their adult state long before
“winter; and then flock together, till the
“breeding

“breeding season returns, which for a while
“dissolves their society.

“As the flesh of almost all these birds is
“in high estimation, so many methods have
“been contrived for taking them. That used
“in taking the ruff, seems to be the most ad-
“vantagous; and it may not be amiss to de-
“scribe it. The Ruff, which is the name of
“the male, the Reeve that of the female, is
“taken in nets about forty yards long, and
“seven or eight feet high. These birds are
“chiefly found in Lincolnshire and the Isle
“of Ely, where they come about the latter
“end of April, and disappear about Michael-
“mas. The male of this bird, which is
“known from all others of the kind by the
“great length of the feathers round his neck,
“is yet so various in his plumage, that it
“is said, no two ruffs were ever seen totally
“of the same colour. The nets in which
“these are taken, are supported by sticks,
“at an angle of near forty-five degrees, and
“placed either on dry ground, or in very
“shallow water, not remote from reeds:
“among these the fowler conceals himself, till
“the birds, enticed by a stale or stuffed bird,
“come under the nets: he then, by pulling
“a string,

“ a string, lets them fall, and they are taken ;
“ as are godwits, knots and grey plovers, also
“ in the same manner. When these birds are
“ brought from under the net, they are not
“ killed immediately, but fattened for the ta-
“ ble, with bread and milk, hemp-feed, and
“ sometimes boiled wheat ; but if expedition be
“ wanted, sugar is added, which will make them
“ a lump of fat in a fortnight’s time.”

Such are the general remarks which apply to nearly the whole extensive tribe of birds that we have now under consideration ; but though approaching so near each other, in their habits and manners, many of the principal ones are nevertheless very different ; to those principal, however, are attached a number of affinities and varieties which, by that slow and almost imperceptible degrees, which is universally to be discovered through animated nature, they become so nearly allied, as to defy the most acute observer to point out where the distinctions begin. We shall therefore proceed to a description of the heads of each family, as from thence may be drawn a perfect idea of the whole race.

THE CURLEW.

LATHAM enumerates eleven species of this bird, differing very much in size, the longest measuring about twenty-five inches, and sometimes weighing thirty-six ounces. These birds fly in considerable flocks, and are well-known upon the sea-coasts in most parts, where, and in the marshes, they frequent in the winter, feeding on worms, frogs, and all kinds of marine insects. In April, or the beginning of May, they retire into the mountainous and unfrequented parts of the sea-shore, where they breed, and do not return again till the approach of winter. There have been some advocates in favour of the flesh of this bird, but in general it is strong, rank, and fishy. It has a long black bill, much curved or arched, about eight fingers only, and beginning to bend a little
VOL. III. D downwards

downwards about three fingers from the head. The middle parts of the feathers on the head, neck, and back, are black; the borders or outsides ash-coloured, with an intermixture of red, and those between the wings and back are of a most beautiful glossy blue, and shine like silk. The rump and the belly are white. The feet are divided, but joined by a little membrane at the root. The tongue is very short, considering the length of the bill, and bears some resemblance to an arrow.

The female is somewhat larger than the male; which is commonly called the Jack Curlew, and the spots with which her body is covered almost all over, is more inclining to a red.

The *Stone Curlew* differs very much from the former. It is a pretty large bird, being from the extension of the point of each wing, a full yard, and has a straight sharp pointed bill, near two inches long, black towards the nostrils, the other parts yellow; the eyes and the edges of their lids are yellow, there is a bare place under each eye, that appears of a sort of yellowish green, the breast, thighs, and under the chin, are of a yellowish white, the back, head, and neck, are in the middle parts black, with

with their borders of a sort of redish ash-colour, with some transverse spots of white upon the quill-feathers, and the outward surface black, some of the other wing feathers are tipped with white, so that they appear of a fine mixture of black and white, prettily mottled. The tail is about six inches long, the colours variegated like those of the body and wings. The legs are long, and of a yellowish colour, with small black claws, it has only three fore toes, which are joined together by a little membrane; but has not any back toe at all.

They are found in Norfolk, and several other counties in England, and have a cry that very much resembles that of the green plover, they breed very late in the year, insomuch that the young ones have been found in the latter end of October, scarce able to fly; they run very swiftly, and will often stop, and stand without any motion of any part of their bodies.

The *Barker* may not be improperly placed here, from in a great measure partaking of the characteristics of the Curlew family, if it does not in reality belong to it. This bird measures from the point of the bill to the end of the tail, near two feet, and from the point of each wing when extended upwards of three. The head and part

of the neck is of a cinereous, or brown colour ; interspersed with small black spots ; the back, and both the covert and scapular feathers of the wings, of a reddish brown, with white edges and tips : the quill-feathers black, with their outward edges white. The under part of the body is of a dusky white, tinged with yellow.— The tail is composed of dusky brown feathers, striped regularly with white on both the webs. The legs and feet are brown, tinged with a dusky yellow, and greenish gloss.

They generally feed in the salt marshes, not far from the sea, and are so timorous that they will very rarely admit a man to come near them, usually seeking their food in the night as other nocturnal birds do. They are said to make a noise like the barking of a dog ; from whence they are supposed to take the name of Barker ; though according to Mr. Ray, this appears to be the bird described by Bellonius, by the name of Berge, and that which the French call Petit Corlieu, which they esteem a very great delicacy.

THE WOODCOCK.

THIS, commonly termed the Snipe genus, is reckoned to include thirty species, of which the Woodcock is considered the head. This bird is not quite so large as the partridge, being from the point of each wing when extended about two feet, and weighs about eleven, but sometimes twelve ounces; the bill is straight, and about three inches long, the upper part falling a little over the under at the tip end; the back, and all the under parts of the body partake of a great variety of colours; the back part of the head inclining to black, with little cross bars that appear like a sort of shell work; and between the eye and the bill, a black line on each side; nearer to the bill, it is more redish, the whole beautifully variegated with red, black, grey, and ash-colour, which viewed together make a very delightful appearance; the breast and belly are more grey, with a variety

riety of transverse pale and brown lines. The sides of the wings are crossed with various red bars, like those on the head, with a few pale or whiter feathers, interspersed upon each; the under parts of the wings are a mixture of grey and brown, with a variety of crossed or waved lines. The tail is about three inches long, the upper part of the tips cinereous or brown, the under white, which when it raises its tail, as it frequently does while feeding, is often discovered by those feathers. The legs and feet are of a dusky pale colour; and the claws, which are very small, black.

They frequent woods, and woody places, where there is rivulets and springs; and are very often found on the sides of banks, near watry ditches, and in small brambles and coverts; where they feed amongst slime and earth, from whence Mr. Willoughby says they draw small shell fish, worms, and other insects: but Mr. Durham, I think more justly observes, that they feed chiefly on the fatty unctious humour they suck out of the earth, for which purpose he says they have remarkable nerves reaching to the end of their bills.

They are birds of passage that come into England in the autumn, and leave us in the spring,

spring, but are said to pair before they go. Notwithstanding the various conjectures of authors, I believe it is not certainly known from what parts of the world they come, or whither they go; they are generally observed to come and go in foggy weather, and some of them that by accident have been left here during the summer, have been known to breed here, and are said to lay long pale red eggs, deeply stained with spots and clouds.

The *Godwit* is about sixteen inches in length, and weighs from ten to twelve ounces; its bill is near as long as that of the woodcock, of a palish red towards the base, and black at the point, the upper mandible something longer than the lower, the tongue is sharp, the ears open, and large.

The feathers upon the head are of a light brown or redish colour, with their middle parts black; but about the eyes of a more pale or yellowish tincture; the neck and breast are pretty much of the same colour of the head, only interspersed with transversed black lines, edged with a pale yellow.

The large wing feathers are black, the shafts white, with a broad bar of white running along the middle of the three first feathers; the rest

of

of the row, and those also of the next have redish ash-coloured edges and tips; the lesser covert feathers are of the same colour of the body. The tail feathers are alternately crossed with black and white lines. The legs of a dusky greenish colour, and the claws black.

They feed by the sea-side upon sandy shores; where they are frequently seen walking up and down like the gull. The throat and neck of the hen are grey, and the rump white, speckled or powdered with blackish spots. They are in some places called the Stone Plover.

The *Green-shank* is not so common as the godwit: it is about fourteen inches in length; the bill two inches and an half long. The plumage on the upper parts is a brown ash-colour; on the lower parts white: and it has a broad white stroke extending from the bill to the eye: the legs are green, whence it takes its name. It has the same manners and character as the godwit, and has also a white line over the eye; but does not weigh more than half as much.

The *Red-shank* weighs about five ounces and an half, and is twelve inches long. The bill is two inches, red at the base, and black towards the point. The head, neck, and scapulars are dusky ash-colour, obscurely spotted with

with black: the back is white, spotted with black: the breast is white, streaked with dusky lines. When its nest is in danger, it makes a noise somewhat similar to that of the lapwing.

The *Snipe* is from the point of the bill to the end of the tail about twelve inches, and from the point of each wing when extended about fifteen or sixteen, the head is divided, by a pale and red line, which runs longways, parallel to which on each side is a black line, and over the eyes, there runs another line pretty much of the same colour of that on the middle of the head; it has a white place under the bill. The feathers that spring from the shoulders are so long that they reach almost as far as the end of the tail, the outward half from the shaft being of a pale red. The colours thus succeeding each other make two lines down the back, the covert feathers of which are dusky with white transverse lines, and white tips on some of the large wing feathers, the lesser feathers being of a mixed colour of red, black and grey, beautifully variegated with white and brown lines; the tail feathers are more red, with black lines running across them. The bill is black at the tip, and near three inches long, the tongue is sharp, the eyes of a hazel colour. The legs

are of a pale greenish colour, the toes pretty long, and the talons black.

The flesh is exceeding good, sweet and tender, it feeds on worms and other insects, and upon the fat unctious humour that it sucks out of the earth.

They build in moors and marshes, laying four or five eggs, they generally leave us in the summer time and go into other countries, as other birds of passage; but some are said to abide all the summer in marshy places where they likewise breed. They feed in drains of water springs, and other fenny places.

The *Sandpiper* genus includes at least forty varieties, and among them are the Ruff, the Knot, the Purro, the Turnstone, the Dunlin, and the Lapwing. The Sandpiper itself is a small bird, seldom exceeding the size of a thrush, at least in England, and some of them are not bigger than a sparrow. In the milder climates there are larger species, such as the *green*, the *spotted*, the *red*, and the *gambel sandpipers*, many of which have been seen as large as a pigeon. That with whom we are most acquainted, weighs about two ounces; it has a brown head streaked with black, the back and coverts brown, mixed with a glossy green, and the breast

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FIG. 77.

The Ruff.



FIG. 78.

Lapwing.

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and belly quite white. The whole of this tribe have a shrill pipe, or whistle, from which they derive their name, and which they constantly make use of.

The *ruff* is the least known, its race being confined to the north of Europe, during the summer, and in England only visiting certain parts, viz. Lincolnshire, the Isle of Ely, and the adjacent parts of Yorkshire, in the spring. The male, which is called the *ruff*, from the remarkable bunch of feathers which surrounds its neck just below the head, is so various in its plumage, that it is not easily described; the ground is, however, mostly brown. The female, which is called the *reeve*, is less than the *ruff*, and has her plumage more of a uniform brown. This bird is so noted for its contentious spirit, that it has obtained the epithet of the fighter. In the beginning of spring, when these birds arrive among our marshes, they are observed to engage, with desperate fury, against each other. It is then that the fowlers, seeing them intent on mutual destruction, spread their nets over them, and take them in great numbers: yet, even in captivity, their animosity still continues. The people that fatten them up for sale, are obliged to shut them up in close

dark rooms ; for if they let ever so little light in among them, the turbulent prisoners instantly fall to fighting each other, and never cease till each has killed its antagonist, especially, says Willoughby, if any body stands by. A similar animosity, though in a less degree, prompts all this tribe ; but when they have paired, and begun to lay, their contentions are then over.

The *Knot* is three inches less than the ruff, measuring not more than nine inches, and weighing only four ounces and an half. The head and neck are ash-colour, the back and scapulars brown, with a white bar on the wings. They frequent the coasts of Lincolnshire from August to November, and when fattened, are preferred by some to the ruffs themselves.

The *Purro*, or *Stint*, weighs only an ounce and an half, and is in length seven inches. A white stroke divides the bill and eyes. The upper parts of the plumage are brownish ash-colour, the breast and belly white, as are the lower parts of the quill-feathers. These birds come in vast flocks on our sea-coasts in winter, and in their flight observe uncommon regularity, appearing like a white or dusky cloud.— They were formerly a frequent dish at our tables and known by the name of stints.

The

The *Turnstone* is about the size of a thrush. The bill is nearly an inch long, and turns a little upwards. The head, throat and belly, are white, the breast black, and the neck encircled with a black colour. The upper parts of the plumage are of a pale reddish brown. These birds take their name from their method of finding their food, which is by turning up small stones with their bills, to get at the insects which lurk under them.

The *Dunlin* is the size of a jack snipe. The upper parts of the plumage are ferrugineous, marked with large spots of black, and a little white; the lower parts are white, with dusky streaks. It is found in all the northern parts of Europe.

The *Lapwing* is about the size of a common pigeon, and is covered very thick with plumes which are black at the roots, but of a different colour on the outward part. The feathers on the belly, thighs, and under the wings are, most of them white as snow; and the under part on the outside of the wing is white, but black lower.

It has a great liver divided into two parts; and, as some authors affirm, no gall.

They

They make a great noise with their wings, in flying; and are called pee-wits in the North of England from their particular cry.

They build their nests on the ground in the middle of some heath or field, open and exposed to view, laying only a few straw or bents under the eggs, which are commonly about four or five in number, and so like the ground they lie on, in colour, that it is not easy to find them, notwithstanding they lie so open; for they are of a dirty yellow, speckled all over with large black spots and strokes. The young ones are covered with a thick down, and immediately forsake the nest as soon as hatched; running away with the shells upon their back, and following the old ones like chickens.

It is said of this bird, that the further you are from her nest, the more clamorous she is, and that the nearer you are to it, the less concerned she appears, going quietly before you, that she may draw you from the true place, and induce you to believe it is where it is not.

They are found in most countries in Europe; and are accounted very delicate eating, the flesh being tender and well-tasted.

The *Green Plover* is much about the same size, and has a short, round, black bill, sharp
at



Flover.

Sea Duck.



Oot.

Water Hen.



at the end, and a little hooked. The tongue, which fills all the lower chap of the bill, is triangular at the tip, horny underneath, and turns a little up. The feathers of the back and wings are black, thick-set with transverse spots of a yellowish green colour; the breast is brown, spotted with yellowish green; and the belly white. It has no hind claw or spur.

They are found in France, Switzerland, Italy, and in most countries of England; in all which places they are esteemed a choice dish, their flesh being very tender, and of an exceeding agreeable flavour.

They feed chiefly upon worms; though some authors have affirmed they live, like the grasshopper, upon nothing but dew; their intestine being almost always found empty.

This bird was called *Paradalis* by the ancients, from its beautiful spots, which somewhat resemble those of the leopard.

There are few gentlemen that delight in gardens, but know how necessary and useful, the lapwing and plover are, for the destroying of worms, snails, caterpillars, and such other insects, as generally infest those places; and it is very common to leave the care of that part of the gardener's office, to a few of these pretty creatures,

creatures, after pulling the large feathers from their wings to prevent their flying abroad.

The *Grey Plover* is about the bigness of the former; but the bill is somewhat longer and thicker, and it has a very small hind claw or spur. The head, back, and lesser feathers of the wings, are black, with tips of a greenish grey. The breast, belly and thighs are white, as are also the feathers under the bill; and the throat is spotted with brown or dusky spots. The tail is very short, insomuch that the wings exceed it in length.

Their flesh is very tender and delicate, and no less esteemed than that of the former.

The *Ringed Plover* is seven inches and a half long, though it weighs only two ounces; the bill is half an inch long, and from it to the eyes runs a black line. The upper part of the neck is encircled with a white collar, the lower part with a black one. The back and wings are light brown, the breast and belly are white, the legs yellow. They frequent our shores in summer, and are sometimes known by the name of the sea lark.

The *Long-legged Plover* is a singular bird. Though inferior in size to the green plover, it measures nearly a foot and a half when standing

ing erect, on which account it has been called the red-legged crane. The head, back, and wings are glossy black, the rump and belly white. It is found in most quarters of the world, but is very uncommon in England.

The *Dotterel* is about ten inches in length, and weighs four ounces. The bill is shorter than that of any of this genus, being only an inch long. The head is black, spotted with white, and a white stroke runs under each eye, meeting behind. The upper parts of the plumage are greyish brown margined with a dull deep yellow. The breast is a dull orange, and across it is a streak of white margined above with black. The colours of the female are less vivid. It is esteemed a very foolish bird; and is said to mimic the actions of the fowler, stretching out a wing when he stretches out an arm, &c. regardless of the net which is spreading over it. They appear in England in small flocks from April to September.

The *Frigate*, or *Man of War Bird*, is so called because of the swiftness of his flight, and his large and spreading wings; he is found in several of the Caribbee Islands, and is said to fly sometimes a hundred leagues from land, but not often; they are commonly seen hovering

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about the coasts of some of the above-mentioned islands for their prey, which is chiefly the flying fish, and are a token by which the sailors know what part of the world they are in. The body of this bird is about the size of a pheasant, his breast very fleshy, and his tail forked; his wings when shut up to his body, are so long that they reach down to the end of the tail, like a swallow's; the cock is quite black, the hen is of a dirty lead colour, the neck is long, and the head small, with two great black eyes, the sight very piercing; the claws are short, and divided as the vulture's; the beak is thick, and black, about six inches long, the upper part hooking over the under.

This bird seems to be a species of the Alcatraci, only with this difference, the one frequents the East, and the other the West Indies: he has a great red comb, or rather wattle, hanging under his throat like a cock's, which does not appear in the young till they are full grown; the females have none; there is no difficulty in taking of them when they sit on the ground, or in their nests, on account of the length of their wings, which hinders them from rising hastily, so that they may be beaten down with long sticks. The oil or fat of this bird is accounted

counted a sovereign remedy for several disorders proceeding from cold, and is in great esteem all over the Indies. He is a sea fowl, but his feet are not webbed as the East India ones are.

A Portuguese traveller describes a bird he frequently saw at Brasil, which they call the caripira, otherwise the forked-tail, the tail being divided in the midst. The fat or oil of this bird he says is good against a looseness, and the feathers serve the Indians for their arrows: and that they are certain fore-runners of the arrival of the ships, it very seldom failing, that some days after they are seen, the ships arrive in the ports. This, by the description he gives, seems to be the bird before described; but it is the misfortune of a great many travellers not only to mistake the different species, by some little variations that appear either in colour or size of the birds in climates a considerable distance from each other, but to give us their description in such terms, as are very often difficult to be understood.

The *Sea-Lark* is a small bird that does not weigh more than two ounces, whose bill is short in comparison of other water-fowls, the upper part of which is encompassed with a black

line, which spreads itself round the eyes, and passes cross the middle of the head, where it encircles a fillet or broad band of white, which runs from the inner corner of one eye to the other; the under part of the throat is white, and round the neck there runs a fine collar, or double ring, the upper part of which is white, the lower part pretty broad and black, the rest of the body is of a dark ash-colour, except the breast and belly, which are white. The legs and feet are of an orange colour, the claws black, the tail about two inches long.

It builds its nest of grass, straw, and stalks of plants, upon the sea rocks, where it lays greenish coloured eggs, with brown spots upon them. It commonly makes but short flights, but runs exceeding swift upon the shores, continually singing, and crying as it flies. It is common upon most of the sea coasts in England, and upon the banks of rivers, and is said to feed upon beetles and small insects.

The flesh is said by Aristotle, Ælian, Heliodorus, and others, to be a certain cure for the jaundice; and some authors have not scrupled to affirm, that the bare looking upon this bird is a present remedy for that distemper.

This

This, together with its property of hiding itself all day, and only flying abroad in the night, gave rise to the proverb,—*like a sea-lark*, applied to such persons as enviously concealed any thing, the knowledge of which might be of public use or benefit.

The *Water Rail*, or *Ouzle*, weighs about four ounces and a half; it is larger than a quail, and resembles the water hen; the body is very slender, the head is small and narrow, the bill is straight, and about two inches long, resembling that of the ruff; the lower mandible is red, as is some part of the upper, but black and smooth towards the top: the tongue is white and rough, and extends itself quite to the end of the bill. It has a naked skin, with a sort of bald black spot in the forehead, but very small. The upper part of the body is variegated with black, dark brown, and a fine olive colour, the middle part of almost every single feather being black, with olive coloured edges. Under the bill upon the throat, it is white, the other part of the neck red, with an ash-coloured mixture, the outmost edges, which appear like fringes of feathers, being more of a greyish colour; the breast is inclined to a blue, with some white feathers about the middle;

dle; on the sides of the body, and upon the thighs, are black feathers elegantly variegated with white transverse lines. The tail is about two inches long, the upper part of a brown colour, with some white feathers on the under part. The legs and feet are strong, and of a redish brown. It hides itself about the banks of rivers, and will occasionally run very swift; it seems rather to walk than swim in the water and flies with its feet hanging down almost straight.

OF THE WATER HEN AND ITS AFFINITIES.

THIS race is considered by naturalists as the tribe which unites the web-footed kind with those of the crane species; for although they have long legs and necks like the latter, yet by being furnished with a flight membrane between their toes, are enabled to swim like the former; the principal of them are the *Gallinule*, or *Water Hen*, and the *Coots*; these, though placed in different classes by those who are fond of nice distinctions, we had almost said, perfectly resemble each other in figure, feathers, and habits; they both have long legs, with thighs almost bare of hair or feathers; their necks are rather long in proportion; their wings short, as is their bills, which are very weak; their general colour black, and their forehead bald and without feathers. Such are their

their similarities ; and their slight differences are first in size, the water hen weighing but fifteen ounces, and the coot twenty-four. The bald part of the forehead in the coot is black, in the water-hen it is of a pink colour. The toes of the water-hen are edged with a straight membrane ; those of the coot have it scolloped and broader. In shape and figure their differences are very trifling, and, if possible, in their manner of living, still less ; therefore the history of one will serve for both. As birds of the crane kind are furnished with long wings, and easily change place, the water-hen, whose wings are short, is obliged to reside entirely near those places where her food lies : she cannot take those long journies that most of the crane kind are seen to perform ; compelled by her natural imperfections, as well perhaps as by inclination, she never leaves the side of the pond or the river in which she seeks for provision. Where the stream is selvaged with sedges, or the pond edged with shrubby trees, the water-hen is generally a resident : she seeks her food along the grassy banks ; and often along the surface of the water. And it has been judiciously remarked by Goldsmith, that " with Shake-
" spear's Edgar, she drinks the green mantle of
" the

“ the standing pool ; or, at least, seems to prefer those places where it is seen. Whether she makes pond-weed her food, or hunts among it for water-insects, which are found there in great abundance, is not certain ; but I have seen them when pond-weed was taken out of their stomachs.” She builds her nest upon low trees and shrubs, of sticks and fibres by the water side. Her eggs are sharp at one end, white, with a tincture of green spotted with red. She lays twice or thrice in a summer ; her young ones swim the moment they leave the egg, pursue their parent, and imitate all her manners. She rears, in this manner, two or three broods in a season ; and when the young are grown up, she drives them off to shift for themselves.

As the coot is a large bird, it is always seen in larger streams, and more remote from mankind. The water hen seems to prefer inhabited situations : she keeps near ponds, motes, and pools of water near gentlemen's houses ; but the coot keeps in rivers, and among rushy margined lakes. It there makes a nest of such weeds as the stream supplies, and lays them among the reeds, floating on the surface, and rising and falling with the water. The reeds

among which it is built keep it fast ; so that it is seldom washed in the middle of the stream. But if this happens, which is sometimes the case, the bird sits in her nest, like a mariner in his boat, and steers with her legs her cargo into the nearest harbour : there, having attained her port, she continues to sit in great tranquillity, regardless of the force of the current ; and though the water penetrates her nest, she hatches her eggs in that wet condition.

The water-hen never wanders ; but the coot sometimes swims down the current, till it even reaches the sea. In this voyage these birds encounter a thousand dangers : as they cannot fly far, they are hunted by dogs and men ; as they never leave the stream, they are attacked and destroyed by otters ; they are preyed upon by kites and falcons ; and they are taken, in still greater numbers, in weirs made for catching fish ; for these birds are led into the nets, while pursuing small fish and insects, which are their principal food ; and in this instance it has been observed, that “ animated nature affords a picture of universal invasion ! Man destroys the “ otter, the otter destroys the coot, the coot “ feeds upon fish, and fish are universally the “ tyrants of each other.”

The

The *Olive, Sea-pipe, or Oyster-Catcher*, is a bird very common on the western shores and sea coasts of South Wales; it generally weighs about half a pound; its bill is of an orange colour, and about two inches and a half long, ending in a sharp point, the upper part being a little longer than the under; the eyes and the edges of their lids are of a fine red; the quill-feathers, head, and all the upper parts of the body down to the middle of the breast are black; except a crescent of white which runs along the throat; the belly, rump, and the most of the covert feathers are white; the lower part of the tail is white; but the tips of the tail-feathers are all entirely black; the legs and the feet are of a yellowish-red, and the middle and outermost toes are united by a slight kind of membrane. This bird has been called sea-pie, entirely from living on the sea-shores, and its colours being so suddenly contrasted from black to white; and oyster-catcher, from the facility with which it takes that fish; for this purpose, whenever it comes near a parcel of them, it patiently watches round until one opens its shells, which is instantly perceived by the bird, who with amazing quickness thrusts in its beak, and almost instantaneously separates the

oyster therefrom ; besides oysters, it feeds upon limpets, and almost all kinds of shell fish, but notwithstanding they make the principal part of its food, its flesh is rank, and very ill flavoured.

Of the *Phalarope* there are three varieties, the common one perfectly resembles the sandpiper, except the scolloped membranes on the toes ; they are small birds, scarcely ever weighing above an ounce. The grey phalarope has the upper parts of the plumage ash-coloured, varied a little with brown and white, and the breast and belly white. The red phalarope only differs from the former, in having the upper parts of the plumage of a deep lead colour, striped with a dusky yellow, and the under parts of a dusky red. They are not a very common bird, but are sometimes found in the marshy parts of the country.

To these birds, with long legs and finny toes, we will add one species more, with short legs and finny toes ; namely, the *Grebe*, whose appetites and manners it is true, are similar to those of the web-footed class, but it resembles those above described, in the peculiar form of its toes and bears some similitude in its manners also.

The

The Grebe is larger than either of the former, and its plumage is white and black: it differs also in the shortness of its legs, which are made for swimming, and not walking: in fact, they are from the knee upward hid in the belly of the bird, and have consequently very little motion. By this mark, and by the scolloped fringe of the toes, may this bird be easily distinguished from all others.

As they are thus, from the shortness of their wings, ill formed for flying, and from the uncommon shortness of their legs, utterly unfitted for walking, they seldom leave the water, but usually frequent those broad shallow pools where their faculty of swimming can be turned to the greatest advantage, in fishing and seeking their prey.

They are chiefly, in this country, seen to frequent the meres of Shropshire and Cheshire; where they breed among reeds and flags, in a floating nest, kept steady by the weeds of the margin. The female is said to be a careful nurse of its young, being observed to feed them most assiduously with small eels; and when the little brood is tired, the mother will carry them, either on her back or under her wings. This bird preys upon fish, and is almost perpetually diving

diving. It does not shew much more than the head above water ; and is very difficult to be shot, as it darts down on the appearance of the least danger. It is never seen on land ; and, though disturbed ever so often, will not leave that lake where alone, by diving and swimming, it can find food and security. It is chiefly sought for the skin of the breast, the plumage of which is of a most beautiful silvery white, and as glossy as satin. This part is made into tippets ; but the skins are out of season about February, losing their bright colour ; and in breeding-time their breasts are entirely bare.

There are a great number of varieties of the grebe enumerated, but the most beautiful is the *eared grebe*, which is a native of Siberia ; it is about the size of a teal, and is distinguished by a tuft of orange-coloured feathers, which shoot out from the side of each eye.

OF THE WEB-FOOTED FOWL IN GENERAL.

IT has been frequently observed, that throughout the whole race of birds, one tribe encroached so nearly upon the nature and habits of another, that it was not easy to draw the line which kept them asunder: but in those which are properly called water-fowl, nature has marked them by a variety of indelible characters.

The first great distinction in this class, appears in the toes, which are webbed together for swimming. Those who have remarked the feet or toes of a duck, will easily conceive how admirably they are formed for making way in the water. When men swim they do not open the fingers, so as to let the fluid pass through them; but closing them together, present one broad service to beat back the water,
and

and thus push their bodies along. What man performs by art, nature has supplied to water-fowl; and, by broad skins, has webbed their toes together, so that they expand two broad oars to the water; and thus, moving them alternately, with the greatest ease paddle along. We must observe also, that the toes are so contrived, that as they strike backward, their broadest hollow surface beats the water; but as they gather them in again, for a second blow, their front surface contracts, and does not impede the bird's progressive motion.

As their toes are webbed in the most convenient manner, so are their legs also made most fitly for swift progression in the water. The legs of all are short, except three, namely, the flamingo, the avosetta, and the curlew.—Except these, all web-footed birds have very short legs; and these strike, while they swim, with great facility. Were the leg long, it would act like a lever whose prop is placed to a disadvantage; its motions would be slow, and the labour of moving it considerable. For this reason, the very few birds whose webbed feet are long, never make use of them in swimming; the web at the bottom seems only of service as a broad base, to prevent them from sinking while they

they walk in the mud; but it otherwise rather retards than advances their motion.

The shortness of the legs in the web-footed kinds, render them as unfit for walking on land, as it qualifies them for swimming in their natural element. Their stay, therefore, upon land, is but short and transitory; and they seldom venture to breed far from the sides of those waters where they usually remain. In their breeding seasons, their young are brought up by the water-side; and they are covered with a warm down, to fit them for the coldness of their situation. The old ones also have a closer, warmer plumage, than birds of any other class. It is of their feathers that our beds are composed; as they neither mat nor imbibe humidity, but are furnished with an animal-oil, that glazes their surface, and keeps each separate. In some, however, this animal-oil is in too great abundance; and is as offensive from its smell as it is serviceable for the purposes of household economy. The feathers, therefore, of all the penguin kind, are totally useless for domestic purposes; as neither boiling nor bleaching can divest them of their oily rancidity.—Indeed, the rancidity of all new feathers, of whatever water-fowl they be, is so disgusting that

our upholsterers give near double the price for old feathers that they afford for new: to be free from smell, they must all be lain upon for some time; and their usual method is to mix the new and the old together.

This quantity of oil, with which most water fowl are supplied, contributes also to their warmth in the moist element where they reside. Their skin is generally lined with fat; so that, with the warmth of the feathers externally, and this natural lining more internally, they are better defended against the changes or the inclemencies of the weather, than any other class whatever.

As, among land-birds, there are some found fitted entirely for depredation, and others for an harmless method of subsisting upon vegetables, so also among these birds there are tribes of plunderers, that prey, not only upon fish, but sometimes upon water-fowls themselves. There are likewise more inoffensive tribes, that live upon insects and vegetables only. Some water-fowls subsist by making sudden stoops from above, to seize whatever fish come near the surface; others again, not furnished with wings long enough to fit them for flight, take their prey by diving after it to the bottom.

From

From hence all naturalists observe, that
“ all water-fowl naturally fall into three distinctions. Those of the Gull kind, that,
“ with long legs and round bills, fly along the
“ surface to seize their prey. Those of the
“ Penguin kind, that, with round bills, legs
“ hid in the abdomen, and short wings, dive
“ after their prey: and thirdly, those of the
“ Goose kind, with flat broad bills, that lead
“ harmless lives, and chiefly subsist upon insects
“ and vegetables.

These distinctions are strongly and evidently marked by Nature. The gull kind are active and rapacious; constantly, except when they breed, keeping upon the wing; fitted for a life of rapine, with sharp straight bills for piercing, or hooked at the end for holding their fishy prey. In this class we may rank the albatross, the cormorant, the gannet or soland goose, the shag, the great brown gull, and all the lesser tribe of gulls.

The Penguin kind, with appetites as voracious, bills as sharp, and equally eager for prey, are yet unqualified to obtain it by flight. Their wings are short, and their bodies large and heavy, so that they can neither run nor fly. But they are formed for diving in a very

peculiar manner. Their feet are placed so far backward, and their legs so hid in the abdomen, that the slightest stroke sends them head foremost to the bottom of the water. To this class we may refer the penguin, the auk, the skout, the sea-turtle, the bottle-nose, and the loon.

The Goose kind are distinguishable by their flat broad bills, covered with a skin; and their manner of feeding, which is mostly upon vegetables. In this class we may place the swan, the goose, the duck, the teal, the widgeon, and all their numerous varieties.

Such are the general peculiarities that belong to each of these tribes, of which, as well as of their distinctive ones, we shall have occasion to speak of more fully when we come to treat of them individually.

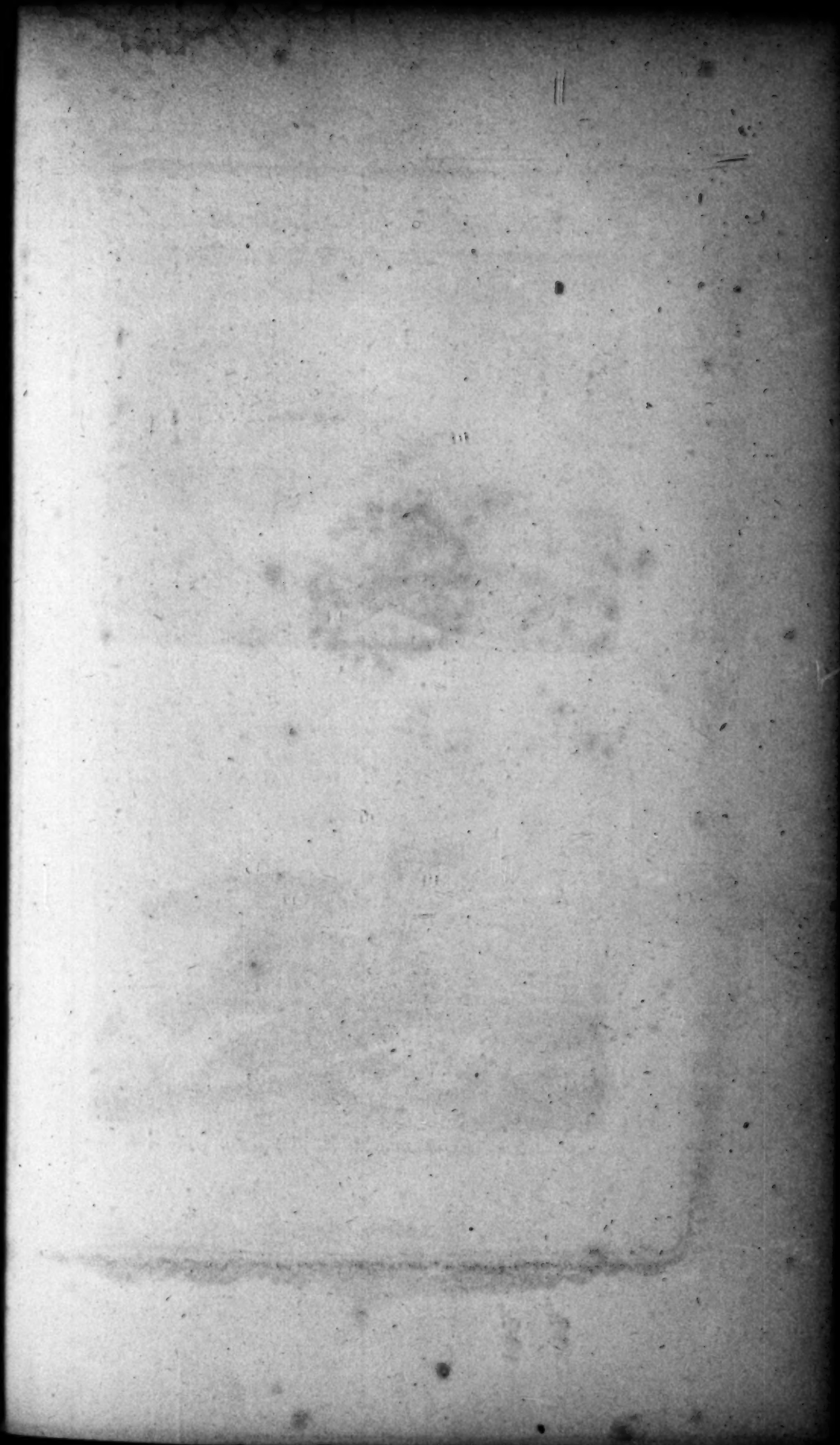




FIG. 63.
The Pelican.



FIG. 64.
Albatross.

OF THE PELICAN.

AS this bird has not only to boast a pre-eminence in size, but possesses a singularity of conformation peculiar to itself, it necessarily has a claim to take the lead in that species to which it seems to be most nearly allied, although it cannot be said to absolutely belong thereto.

The Pelican of Africa is much larger in the body than a swan, and somewhat of the same shape and colour. Its four toes are all webbed together; and its neck in some measure resembles that of a swan: but the singularity in which it differs from all other birds is in the bill and the great pouch underneath, which are wonderful, and demand a distinct description. This enormous bill is fifteen inches from the point to the opening of the mouth, which is a good way behind the eyes. At the base

base the bill is somewhat greenish, but varies towards the end, being of a redish blue. It is somewhat thick in the beginning, but tapers off to the end, where it hooks downwards. The under chap is still more extraordinary; for to the lower edges of it hang a bag, reaching the whole length of the bill to the neck, which is said to be capable, in some, of containing fifteen quarts of water. This bag the bird has a power of wrinkling up into the hollow of the under chap; but by opening the bill, and putting one's hand down into the bag, it may be distended at pleasure. The skin of which it is formed will then be seen of a bluish ash-colour, with many fibres and veins running over its surface. It is not covered with feathers, but with a short downy substance as smooth and as soft as satin, and is attached all along the under edges of the chap, to be fixed backward to the neck of the bird by proper ligaments, and reaches near half way down. When this bag is empty it is not seen; but when the bird has fished with success, it is then incredible to what an extent it is often dilated. For the first thing the pelican does in fishing is to fill up the bag; and then it returns to digest its burthen at leisure. When the bill

is

is opened to its widest extent, a person may run his head into the bird's mouth, and conceal it in this monstrous pouch, thus adapted for very singular purposes. Yet this is nothing to what Ruysch assures us, who avers, that a man has been seen to hide his whole leg, boot and all, in the monstrous jaws of one of these animals. At first appearance this would seem impossible, as the sides of the under chap, from which the bag depends, are not above an inch asunder when the bird's bill is first opened; but then they are capable of great separation; and it must necessarily be so as the bird preys upon the largest fish, and hides them by dozens in its pouch. Father Tertre affirms that it will hide as many fish as will serve sixty hungry men for a meal.

This extraordinary bird is a native of Africa and America. It was once known in Europe, particularly in Russia, but it seems of late to have deserted these parts entirely. This is the bird of which so many fabulous accounts have been propagated; such as its feeding its young with its own blood, and its carrying a provision of water for them in its great reservoir when it has made its nest in the desert. The absurdity of the first account answers for itself; and

as for the latter, according to the account of every naturalist who has observed them, the pelican uses its bag for very different purposes than that of filling it with water, either for its own use or that of its progeny.

Its amazing pouch may be considered as analogous to the crop in other birds, with this difference, that as the latter lies at the bottom of the gullet, so this is placed at the top. Thus, as pigeons and other birds macerate their food for their young in their crops, and then supply them, so the pelican supplies its young by a more ready contrivance, and macerates their food in its bill, or stores it for its own particular sustenance.

The ancients were particularly fond of the marvellous, and almost unanimously agreed in giving this bird admirable qualities and parental affections; struck, perhaps, with its extraordinary figure, they were willing to supply it with as extraordinary appetites; and having found it with a large reservoir, they were pleased with turning it to the most tender and parental uses. But we have the authority of the great Buffon for asserting that the pelican is a very sluggish, voracious bird, and very ill fitted to take those flights, or make those cautious

tious provisions for a distant time, which the ancients were so partial of attributing to them. Father Labat, who seems to have studied their manners with great exactness, has given a minute history of this bird, as found in America.

"The pelican," says he, "has strong wings, furnished with thick plumage of an ash-colour, as are the rest of the feathers over the whole body. Its eyes are very small, when compared to the size of its head; there is a sadness in its countenance, and its whole air is melancholy. It is as dull and reluctant in its motions, as the flamingo is sprightly and active. It is slow of flight; and when it rises to fly, performs it with difficulty and labour: Nothing, as it would seem, but the spur of necessity, could make these birds change their situation, or induce them to ascend into the air: but they must either starve or fly.

"They are idle and inactive to the last degree, so that nothing can exceed their indolence but their gluttony; it is only from stimulations of hunger that they are excited to labour; for otherwise they would continue always in fixed repose. When they have raised themselves about thirty or forty feet above the surface of the sea, they turn their

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“ head with one eye downwards, and continue
“ to fly in that posture. As soon as they per-
“ ceive a fish sufficiently near the surface, they
“ dart down upon it with the swiftness of an
“ arrow, seize it with unerring certainty, and
“ store it up in their pouch. They then rise
“ again, though not without great labour, and
“ continue hovering and fishing, with their
“ head on one side as before.

“ This work they continue with great ef-
“ fort and industry till their bag is full, and then
“ fly to land to devour and digest at leisure the
“ fruits of their industry. This, however, it
“ would appear they are not long in perform-
“ ing; for towards night they have another
“ hungry call; and they again reluctantly go to
“ labour. At night, when their fishing is
“ over, and the toil of the day crowned with
“ success, these lazy birds retire a little way
“ from the shore; and though with the webbed
“ feet and clumsy figure of a goose, they will
“ be contented to perch no where but upon
“ trees among the light and airy tenants of the
“ forest. There they take their repose for the
“ night; and often spend a great part of the day,
“ except such times as they are fishing, sitting
“ in dismal solemnity, and as it would seem
“ half

“ half asleep. Their attitude is with the head
“ resting upon their great bag, and that resting
“ upon their breast. There they remain with-
“ out motion, or once changing their situation,
“ till the calls of hunger break their repose, and
“ till they find it indispensibly necessary to fill
“ their magazine for a fresh meal. Thus their
“ life is spent between sleeping and eating; and
“ being as foul as they are voracious, they are
“ every moment voiding excrements in heaps
“ as large as one’s fist.”

“ The same indolent habits, says another
“ author, seem to attend them even in prepar-
“ ing for incubation, and defending their young
“ when excluded. The female makes no pre-
“ paration for her nest, nor seems to chuse
“ any place in preference to lay in; but drops
“ her eggs on the bare ground to the number
“ of five or six, and there continues to hatch
“ them. Attached to the place, without any
“ desire of defending her eggs or her young,
“ she tamely sits and suffers them to be taken
“ from under her. Now and then she just ven-
“ tures to peck, or to cry out when a person
“ offers to beat her off.”

She feeds her young with fish macerated for
some time in her bag; and when they cry, flies
off for a new supply. Labat tells us, that he

took two of these when very young, and tied them by the leg to a post stuck in the ground, where he had the pleasure of seeing the old one for several days come to feed them, remaining with them the greatest part of the day, and spending the night on the branch of a tree that hung over them. By these means they were all three become so familiar, that they suffered themselves to be handled; and the young ones very kindly accepted whatever fish he offered them. These they always put first into their bag, and then swallowed at their leisure.

It seems, however, that they are but disagreeable and useless domestics; their gluttony can scarcely be satisfied; their flesh smells very rancid; and tastes a thousand times worse than it smells. The native Americans kill vast numbers; not to eat, for they are not fit even for the banquet of a savage; but to convert their large bags into purses and tobacco-pouches.— They bestow no small pains in dressing the skin with salt and ashes, rubbing it well with oil, and then forming it to their purpose. It thus becomes so soft and pliant, that the Spanish women sometimes adorn it with gold and embroidery to make work-bags of.

Yet, with all the seeming stupidity of this bird, it is not entirely incapable of instruction
in

in a domestic state. Father Raymond says, that he has seen one so tame and well educated among the Native Americans, that it would go off in the morning at the word of command, and return before night to its master, with its great paunch distended with plunder; a part of which the savages would make it disgorge, and a part they would permit it to reserve for itself.

"The Pelican," as Faber relates, "is not destitute of other qualifications. One of those which was brought alive to the Duke of Bavaria's court, where it lived forty years, seemed to be possessed of very uncommon sensations. It was much delighted in the company and conversation of men, and in music both vocal and instrumental: for it would willingly stand by those that sung or sounded the trumpet; and stretching out its head, and turning its ear to the music, listen very attentively to its harmony, though its own voice was little pleasanter than the braying of an ass." Gesner tells us the emperor Maximilian had a tame pelican which lived for above eighty years, and which always attended his army on their march. It was one of the largest of the kind, and had a daily allowance by the emperor's orders. As
another

another proof of the great age to which the pelican lives, Aldrovandus makes mention of one of these birds that was kept several years at Mechlin, and was verily believed to be fifty years old. If we were to follow a not unfrequent practice of drawing conclusions from colours alone, we should be led to make the assertion that of the pelican species there were many varieties, since there are some entirely white, others whose back and wings are a light brown, and others, though the most singular, are not the least numerous, which have one half their wing feathers white, and the other black, that is, the bottoms next the body white, and the exterior half black, and whose tails are also of the latter colour. Besides these, it is asserted by Father Morella in his voyage to Congo, that in the road to Singa, he met with a great number of pelicans all over black, except their breasts, which, nature has adorned with a flesh colour. They are very numerous in all parts of Asia and Africa, and Thevenot assures us that he saw them swimming on the banks of some parts of the Nile, near the red-sea, like geese, in such numbers that it was impossible to count them.

THE ALBATROSS.

THIS is one of the largest and most formidable birds of Africa and America, but as yet few opportunities have occurred whereby the particulars of its natural history could be obtained, and therefore that little which has been mentioned must be subject to some doubt. In speaking of its figure, Edwards appears to have been the most correct, he says, " the body is
" rather larger than that of the pelican; and
" its wings when extended, ten feet from tip
" to tip. The bill, which is six inches long,
" is yellowish, and terminates in a crooked
" point. The top of the head is of a bright
" brown; the back is of a dirty deep spotted
" brown; and the belly and under the wings
" is white; the toes, which are webbed, are
" of a flesh colour."

Such

Such are the principal traits which he points out in this bird's figure ; but of any peculiarities in its manners and disposition, which might lead us to some knowledge of its history, the greatest part of our naturalists have been entirely silent. A bird has however been described by Wicquefort, under the title of the Alcatraz, which, from its size, colours, and choice of its prey, leaves no room to doubt of its being the same we have under consideration. He describes it as a kind of great gull, as large in the body as a goose, of a brown colour, with a long bill, and living upon fish, of which they kill great numbers.

The Albatross is an inhabitant of the tropical climates, and also beyond them as far as the Straits of Magellan in the South Seas. It is one of the most fierce and formidable of the aquatic tribe, not only living upon fish, but also such small water-fowl as it can take by surprise. It may be considered as the principal of the gull kind ; like the whole of them seeks its prey upon the wing ; and chiefly pursues the flying fish, that are forced from the sea by the dolphins. The ocean in that part of the world presents a very different appearance from the seas with which we are surrounded. In our
seas

seas we see nothing but a dreary expanse, ruffled by winds, and seemingly forsaken by every class of animated nature. But the tropical seas, and the distant southern latitudes beyond them, are all alive with birds and fishes, pursuing and pursued. Every various species of the gull-kind are there seen hovering on the wing, at an immense distance from the shore. A picture of which has been thus most ably drawn:—"the flying fish are every moment
" rising to escape from their pursuers of the
" deep, only to encounter equal dangers in the
" air. Just as they rise the dolphin is seen to
" dart after them, but generally in vain; the
" gull has more frequent success, and often
" takes them at their rise; while the albatross
" pursues the gull, and obliges it to relinquish
" its prey: so that the whole horizon presents
" but one living picture of rapacity and invasion."

These facts have been too clearly ascertained to leave the smallest kind of doubt; but how far we are to credit Wicquefort, in what he adds concerning this bird, the reader is left to determine; he remarks that "as these birds,
" except when they breed, live entirely remote
" from land, so they are often seen, as it should

“ seem, sleeping in the air. At night, when
“ they are pressed by slumber, they rise into
“ the clouds as high as they can; there, put-
“ ing their head under one wing, they beat the
“ air with the other, and seem to take their
“ ease. After a time, however, the weight
“ of their bodies, only thus half supported,
“ brings them down; and they are seen de-
“ scending, with a pretty rapid motion, to the
“ surface of the sea. Upon this they again
“ put forth their efforts to rise; and thus alter-
“ nately ascend and descend at their ease. But
“ it sometimes happens, that, in these slumber-
“ ing flights, they are off their guard, and fall
“ upon deck, when they are taken.”

What truth there may be in this account of that author we shall not pretend to determine; but certain it is, that few birds float upon the air with more ease than the albatross, or support themselves a longer time in that element. They seem never to feel the accessles of fatigue; but night and day upon the wing are always prowling, yet always ematiated and hungry.

Though this bird is of the most voracious disposition, and thus tyrannical in its nature, yet he is also a proof that there are some associates which even tyrants themselves form, to which

which they are induced either by caprice or necessity. The albatross seems to have a peculiar affection for the penguin, and a pleasure in its society. They are always seen to chuse the same places of breeding; some distant uninhabited island, where the ground slants to the sea, as the penguin is not formed either for flying or climbing. In such places their nests are seen together, as if they stood in need of mutual assistance and protection. Captain Hunt, who for some time commanded at our settlement upon Falkland Islands, has declared that he was often amazed at the union preserved between these birds, and the regularity with which they built together. In that bleak and desolate spot, where the birds had long continued undisturbed possessors, and no way dreaded the encroachments of men, they seemed to make their abode as comfortable as they expected it to be lasting. They were seen to build with an amazing degree of uniformity; their nests, by thousands covering fields, and resembling a regular plantation. In the middle, on high, the albatross raised its nest, on heath sticks and long grass, about two feet above the surface: round this the penguins made their lower settlements, rather in holes in the ground; and most usually

eight penguins to one albatross. Nothing is a stronger proof of M. Buffon's fine observation, that the presence of man not only destroys the society of meaner animals, but their instincts also; for we have it as a positive fact, that these nests are now totally destroyed; the society is broken up, and the albatross and penguin have gone to breed upon more desert shores, where they conceive themselves safe from his intrusion, and where they can securely preserve that peace and safety, which he is constantly sure to interrupt.

There are three other species of albatross, all of them smaller than the preceding; the most particular one is called the *yellow-nosed albatross*. The upper parts of the plumage are a dusky blue black, and the rump and under parts white; but what peculiarly distinguishes it is, that the bill, which is four inches long, is black, all but the upper ridge, which is yellow quite to the tip. It inhabits the South Seas within the tropics.

THE CORMORANT.

THE Cormorant is commonly described as being about the size of a large Muscovy duck, and to be distinguished from all other birds of this kind, by its four toes being united together by membranes; and by the middle toe being toothed or notched, like a saw, to assist it in holding its fishy prey. The head and neck of this bird are of a brownish black; and the body thick and heavy, more inclining in figure to that of the goose than the gull. The bill is straight, till near the end, where the upper chap bends into a hook; the tail is about five inches long, composed of hard stiff feathers, and the legs are strong and thick, but very short.

But notwithstanding the seeming heaviness of its make, there are few birds can exceed it in power of wing, or strength of flight. As soon as the winter approaches they are seen dispersed

disperſed along the ſea-ſhore, and aſcending up the mouths of freſh-water rivers, carrying deſtruction to all the finny tribe. They are moſt remarkably voracious, and have a moſt ſudden digeſtion. Their appetite is for ever craving, and never ſatiſfied. This gnawing ſenſation may probably be encreaſed by the great quantity of ſmall worms that fill their inteſtines, and which their unceaſing gluttony contributes to engender.

Thus formed with the groſſeſt appetites, this unclean bird has the moſt rank and diſagreeable ſmell, and is more foetid than even carrion in its moſt healthful ſtate. "Its form," ſays the ingenious Mr. Pennant, "is diſagreeable; its voice is hoarſe and croaking; and all its qualities obſcene. No wonder then that Milton ſhould make Satan perſonate this bird, when he ſent him upon the baſeſt purpoſes, to ſurvey with pain the beauties of Paradife, and to ſit deviſing death on the tree of life. It has been remarked, however, of our poet, that the making a water-fowl perch on a tree, implied no great acquaintance with the hiſtory of Nature. In vindication of Milton, Ariſtotle expreſsly ſays, that the cormorant is the only water-fowl

“ fowl that sits on trees. We have already
“ seen the pelican of this number; and the
“ cormorant’s toes seem as fit for perching
“ upon trees as for swimming; so that our epic
“ bard seems to have been as deeply versed in
“ natural history as in criticism.”

“ Indeed,” says a modern author, “ this bird
“ seems to be of a multiform nature; and
“ wherever fish are to be found, watches their
“ migrations. It is seen as well by land as
“ sea; it fishes in fresh-water lakes, as well
“ as in the depths of the ocean; it builds in
“ the cliffs of rocks, as well as on trees;
“ and preys not only in the day time, but by
“ night.”

Its indefatigable nature, and its great power
in catching fish, were probably the motives
that induced some nations to breed this bird up
tame, for the purpose of fishing; and Wil-
loughby assures us, it was once used in Eng-
land for that purpose. The description of their
manner of fishing is thus delivered by Faber:
“ When they carry them out of the rooms
“ where they are kept, to the fish-pools, they
“ hood-wink them, that they may not be
“ frightened by the way. When they are come
“ to the rivers, they take off their hoods; and
“ having

“ having tied a leather thong round the lower
“ part of their necks, that they may not swal-
“ low down the fish they catch, they throw
“ them into the river. They presently dive
“ under water, and there for a long time,
“ with wonderful swiftness, pursue the fish ;
“ and when they have caught them, rise to the
“ top of the water, and pressing the fish lightly
“ with their bills, swallow them ; till each bird
“ hath, after this manner, devoured five or six
“ dishes. Then their keepers call them to the
“ fist, to which they readily fly ; and, one after
“ another, vomit up all their fish, a little bruised
“ with the first nip given in catching them.
“ When they have done fishing, setting the
“ birds on some high place, they loose the
“ string from their necks, leaving the passage
“ to the stomach free and open ; and, for their
“ reward, they throw them part of their prey ;
“ to each one or two fish, which they will
“ catch most dexterously, as they are falling in
“ the air.”

At present, the cormorant is trained up in every part of China for the same purpose, where there are many lakes and canals. “ To this
“ end,” says Le Comte, “ they are educated as
“ men rear up spaniels or hawks, and one man
“ can

“ can easily manage an hundred. The fisher
“ carries them out into the lake, perched on the
“ gunnel of his boat, where they continue tran-
“ quil, and expecting his orders with patience.
“ When arrived at the proper place, at the first
“ signal given, each flies a different way to
“ fulfil the task assigned it. It is very pleasant
“ on this occasion, to behold with what saga-
“ city they portion out the lake or the canal
“ where they are upon duty. They hunt about,
“ they plunge, they rise an hundred times to
“ the surface, until they have at last found their
“ prey. They then seize it with their beak by
“ the middle, and carry it without fail to their
“ master. When the fish is too large, they
“ then give each other mutual assistance: one
“ seizes it by the head, the other by the tail,
“ and in this manner carry it to the boat toge-
“ ther. There the boatman stretches out one
“ of his long oars, on which they perch, and
“ being delivered of their burthen, they fly off
“ to pursue their sport. When they are wea-
“ ried, he lets them rest for a while; but they
“ are never fed till their work is over. In this
“ manner they supply a very plentiful table;
“ but still their natural gluttony cannot be re-
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“ claimed even by education. They have al-
“ ways, while they fish, the same string fastened
“ round their throats, to prevent them from de-
“ vouring their prey, as otherwise they would
“ at once satiate themselves, and discontinue
“ the pursuit the moment they had filled their
“ bellies.”

The cormorant is the best fisher of all birds ;
and though fat and heavy with the quantity it
devours, is nevertheless generally upon the
wing. The great activity with which it pur-
sues, and the vast height it drops down to dive
after its prey, offers one of the most amusing
spectacles to those who stand on the shore.
This large bird is seldom seen in the
air, but where there are fish below ; and
then they must be near the surface, before
it will venture to fouse upon them. If they
are at a depth beyond what the impetus
of its flight makes the cormorant capable
of diving to, they certainly escape him ;
for this bird cannot move so fast under wa-
ter, as the fish can swim. It seldom, how-
ever, makes an unsuccessful dip ; and is
often seen rising heavily, with a fish larger
than it can readily devour. Goldsmith says,
“ it

" it sometimes happens, that the cormorant
" has caught the fish by the tail; and conse-
" quently the fins prevent its being easily
" swallowed in that position. In this case
" the bird is seen to toss its prey above its
" head, and very dexterously to catch it when
" descending, by the proper end, and so swal-
" low it with ease."

The ambassador from the Duke of Hol-
stein, in his travels into Muscovy and Persia,
speaks of a kind of large wild geese, or cor-
morants, which they met with, and which the
Muscovites call *babbes*. This author describes
them as being larger than swans, and that
their bills were above a foot long, two fingers
broad, and forked at the end; under the bill,
he says, they had a bag of skin, which they
could contract quite close, or extend it to such
a size as to contain more than two gallons
of liquor; and this they used as a reserva-
tory for the fish they take, until they can
swallow them; he says that one of them that
was shot upon the Caspian sea, measured two
ells and a half between the two extremities
of the wings, and seven feet from the head
to the ends of the toes. In this measure-
ment, we may possibly not unfairly conclude

that some little allowances must be made at his being struck with astonishment at the animal himself, and wishing to convey the same astonishment to others. Fernandes says there are cormorants in Mexico, which have teeth within their bills.

The *Shag*, or, as the French call it, the *lesser Cormorant*, is another of this genus. The common shag is in length two feet six inches, and the extent of its wings eight feet. The general colour of its plumage is black, the belly is dusky, and the head and neck glossed with green. The crested shag is somewhat less than the preceding, and is less common. There are two kinds which are natives of Kamtschatka; these are distinguished as the violet and the red-faced shags being so ornamented with those colours. Besides there are several others found in New Zealand, and also in Africa, in the latter of which there are two species not larger than a teal. The whole of these like the cormorants build in trees.

THE GANNET, OR SOLAND GOOSE.

THE Gannet is about the size of a tame goose, but its wings are much longer, frequently measuring six feet when extended. The bill is six inches long, straight almost to the point, where it inclines down, and the sides are irregularly jagged, that it may hold its prey with greater security. It differs from the cormorant in size, being larger; and its colour, which is chiefly white; and by its having no nostrils, but in their place a long furrow that reaches almost to the end of the bill. From the corner of the mouth is a narrow slip of black bare skin, that extends to the hind part of the head; beneath the skin is another that, like the pouch of the pelican, is dilatable, and of size sufficient to contain five or six entire herrings, which in the breeding season it carries at once to its mate or its young.

These

These birds, which subsist entirely upon fish, chiefly resort to those uninhabited islands where their food is found in plenty, and men seldom come to disturb them. The islands to the north of Scotland, the Skelig islands of the coasts of Kerry, in Ireland, and those that lie in the north sea off Norway, abound with them. But it is on the Bass island, in the Firth of Edinburgh, where they are seen in the greatest abundance. "There is a small island," says the celebrated Harvey, "called the Bass, not
" more than a mile in circumference. The
" surface is almost wholly covered during the
" months of May and June with their nests,
" their eggs, and young. It is scarcely possible to walk without treading on them : the
" flocks of birds upon the wing, are so numerous, as to darken the air like a cloud ; and
" their noise is such, that one cannot, without
" difficulty, be heard by the person next to
" him. When one looks down upon the sea
" from the precipice, its whole surface seems
" covered with infinite numbers of birds
" of different kinds, swimming and pursuing their prey. If, in sailing round the
" island, one surveys its hanging cliffs, in every crag or fissure of the broken rocks, may
" be

“ be seen innumerable birds, of various sorts
“ and sizes, more than the stars of heaven,
“ when viewed in a serene night. If they are
“ viewed at a distance, either receding, or in
“ their approach to the island, they seem like
“ one vast swarm of bees.”

They are not less frequent upon the rocks of St. Kilda. Martin assures us, that the inhabitants of that small island consume annually near twenty-three thousand young birds of this species, besides an amazing quantity of their eggs. On these they principally subsist throughout the year; and from the number of these visitants, make an estimate of their plenty for the season. They preserve both the eggs and fowls in small pyramidal stone buildings, covering them with turf-ashes, to prevent the evaporation of their moisture.

The gannet is a bird of a passage. In winter it seeks the more southern coasts of Cornwall, hovering over the shoals of herrings and pilchards that then come down from the northern sea: its first appearance in the northern islands is in the beginning of spring; and it continues to breed till the end of summer. But, in general, its motions are determined by the migrations of the immense shoal of herrings that come
pouring

pouring down at that season through the British Channel, and supply all Europe as well as this bird with their spoil. The gannet assiduously attends the shoal in their passage, keeps with them in their whole circuit round our island, and shares with our fishermen this exhaustless banquet. As it is strong of wing, it never comes near the land; but is constant to its prey. Wherever the gannet is seen, it is sure to announce to the fishermen the arrival of the finny tribe; they then prepare their nets, and take the herrings by millions at a draught; while the gannet, who came to give the first information, comes, though an unbidden guest, and snatches its prey from the fisherman even in his boat. While the fishing season continues, the gannets are busily employed; but when the pilchards disappear from our coasts, the gannet takes its leave, to keep them company.

The cormorant has been remarked for the quickness of his sight; yet in this the gannet seems to exceed him. It is possessed of a transparent membrane under the eye-lid, with which it covers the whole eye at pleasure, without obscuring the sight in the smallest degree. This seems a necessary provision for the security of the eyes of so weighty a creature, whose method

thod of taking prey, like that of the cormorant, is by darting headlong down from an height of an hundred feet and more into the water to seize it. These birds are sometimes taken at sea, by fastening a pilchard to a board, which they leave floating. The gannet instantly pounces down from above upon the board, and is killed or maimed by the shock of a body where it expected no resistance.

These birds breed but once a year, and lay only one egg, but if that is taken away, they lay another; and if that be also taken away, then a third; but never more for that season. Their eggs are white, and rather less than those of the common goose; and their nest large, composed of such substances as are found floating on the surface of the sea. The young birds, during the first year, differ greatly in colour from the old ones; being of a dusky hue, speckled with numerous triangular white spots; and at that time resembling the colours of the speckled diver.

They come yearly to the Bass Island, which is an almost inaccessible rock, situated at the mouth of the Forth in Scotland, seven miles from land, and faces St. Andrews on the North, North Ber-

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wick on the South, and the German ocean on the East. It was anciently a kind of prison for those who dissented from the then established church. There they breed in great numbers; it belongs to one proprietor, and care is taken never to frighten away the birds when laying, or to shoot them upon the wing. By that means they become so confident as to alight and feed their young ones unconcerned at any person's being near them. They feed upon fish, as we have observed; yet the young gannet is counted a great dainty by the Scots, and sold very dear; so that the lord of the above islet makes a considerable annual profit by the quantity that is taken therefrom.

They quit this island towards the latter end of autumn, and when they return in the spring, there is usually but three or four at first, which precede the rest as so many spies, or harbingers, and are followed by the flock a few days after, as is attested by several creditable authors. They build their nests in the rock, and employ for that purpose such a quantity of sticks as is almost incredible; insomuch that the inhabitants of that part of the country, upon finding a few nests, think themselves plentifully provided with fuel for a twelvemonth. They deposit their

their eggs in the holes of the rock, and while they are laying them, rest one foot upon another; whence Johnston thinks they derive their name from Solea, the sole of the foot. They feed their young ones with the most delicate sort of fish; and if in flying away with one, they see another they like better, they immediately drop the first, and plunge into the water again with great violence. They likewise disgorge a great quantity of fish, which were formerly used as food by the garrison of the castle.

OF GULLS, AND THEIR AFFINITIES.

THESE are in fact but a smaller kind of that genus we have just been describing, and whose habits and manners exactly correspond; they also resemble the more powerful in their appetites for prey, but have not such certain methods of obtaining it. In general, therefore,

the industry of this tribe and their audacity increase in proportion to their imbecility. The cormorant, or as we may more properly say, all the great gulls, live at the most remote distance from man; the smaller are obliged to reside wherever they can take their prey; and to come into the most populous places when solitude can no longer grant them a supply.

The generality of naturalists have placed in this tribe of the gull, properly so called, not only its own varieties, consisting of more than twenty, but also those of the petrell, and of the sea-swallow, which together are six or seven more; of these, however, the gulls may be distinguished by an angular knob on the lower chap; the petrels by their wanting this knob; and the sea-swallow by their bills, which are straight, slender, and sharp pointed. They all, however, agree in their appetites and their places of abode.

The gull, and all its varieties, is very well known in every part of the kingdom. "It is, " says an ingenious modern, seen with a " slow-sailing flight hovering over rivers to " prey upon the smaller kinds of fish; it is seen " following the ploughman in fallow fields " to pick up insects; and when living animal " food

“ food does not offer, it has even been known
“ to eat carrion and whatever else of the kind
“ that it finds. Gulls are found in great plenty
“ in every place; but it is chiefly round our
“ boldest rockiest shores that they are seen in
“ the greatest abundance; it is there that the
“ gull breeds and brings up its young; it is
“ there that millions of them are heard screaming
“ with discordant notes for months together.
“ ther.

“ Those who have been much upon our
“ coasts know that there are two different
“ kinds of shores; that which slants down to
“ the water with a gentle declivity, and that
“ which rises with a precipitate boldness, and
“ seems set as a bulwark to repel the force of
“ the invading deeps. It is to such shores as
“ these that the whole tribe of the gull-kind resort,
“ as the rocks offer them a retreat for
“ their young, and the sea a sufficient supply.
“ It is in the cavities of these rocks, of which
“ the shore is composed, that the vast variety
“ of sea-fowls retire to breed in safety. The
“ waves beneath, that continually beat at the
“ base, often wear the shore into an impending
“ boldness; so that it seems to jut out
“ over the water, while the raging of the sea
“ makes

“ makes the place inaccessible from below:
“ These are the situations to which sea-fowl
“ chiefly resort, and bring up their young in
“ undisturbed security.
“ Those who have never observed our bold-
“ est coasts have no idea of their tremendous
“ sublimity. The boasted works of art, the
“ highest towers, and the noblest domes, are
“ but ant-hills when put in comparison: the
“ single cavity of a rock often exhibits a coping
“ higher than the cieling of a Gothic cathe-
“ dral. The face of the shore offers to the
“ view a wall of massive stone; ten times
“ higher than our tallest steeples. What
“ should we think of a precipice three quar-
“ ters of a mile in height? and yet the rocks
“ of St. Kilda are still higher! What must be
“ our awe to approach the edge of that im-
“ pending height, and to look down on the un-
“ fathomable vacuity below; to ponder on the
“ terrors of falling to the bottom, where the
“ waves that swell like mountains are scarcely
“ seen to curl on the surface, and the roar of
“ a thousand leagues broad appears softer than
“ the murmurs of a brook? It is in these for-
“ midable mansions that myriads of sea-fowls
“ are for ever seen sporting, flying in security
“ down

“ down the depth, half a mile beneath the feet
“ of the spectator. The crow and the chough
“ avoid those frightful precipices; they chuse
“ smaller heights, where they are less exposed
“ to the tempest; it is the cormorant, the gan-
“ net, the tarrock and the terne, that venture
“ to those dreadful retreats, and claim an undif-
“ turbed possession. To the spectator from
“ above, those birds, though some of them are
“ above the size of an eagle, seem scarce as
“ large as a swallow; and their loudest scream-
“ ing is scarce perceptible. *Season and hour*”

“ But the generality of our shores are not so
“ formidable. Though they may rise two hun-
“ dred fathoms above the surface, yet it often
“ happens that the water forsakes the shore at
“ the departure of the tide, and leaves a noble
“ and delightful walk for curiosity on the beach.
“ Not to mention the variety of shells with
“ which the sand is strewed, the lofty rocks
“ that hang over the spectator's head, and that
“ seem but just kept from falling, produce in
“ him no unpleasing gloom. If to this be
“ added the fluttering, the screaming, and the
“ pursuits of myriads of water-birds, all either
“ intent on the duties of incubation, or roused
“ at the presence of a stranger, nothing can
“ compose

“ compose a scene of more peculiar solemnity.
“ To walk along the shore when the tide is de-
“ parted, or to sit in the hollow of a rock when
“ it is come in, attentive to the various sounds
“ that gather on every side, above and below,
“ may raise the mind to its highest and noblest
“ exertions. The solemn roar of the waves
“ swelling into and subsiding from the vast ca-
“ verns beneath, the piercing note of the gull,
“ the frequent chatter of the guillemot, the
“ loud note of the auk, the scream of the heron,
“ and the hoarse deep periodical croaking of
“ the cormorant, all unite to furnish out the
“ grandeur of the scene, and turn the mind to
“ HIM who is the essence of all sublimity.

“ Yet it often happens that the contempla-
“ tion of a sea-shore produces ideas of an hum-
“ bler kind, yet still not unpleasing. The va-
“ rious arts of these birds to seize their prey,
“ and sometimes to elude their pursuers, their
“ society among each other, and their tender-
“ ness and care of their young, produce gentle
“ sensations. It is ridiculous also now and
“ then to see their various ways of imposing
“ upon each other. It is common enough, for
“ instance, with the arctic gull, to pursue the
“ lesser gulls so long, that they drop their ex-
“ crements

“crements through fear, which the hungry
“hunter soon gobbles up before it ever reaches
“the water. In breeding too they have frequent
“contests : one bird who has no nest of
“her own attempts to dispossess another, and
“put herself in the place. This often happens
“among all the gull-kind ; and the poor bird,
“thus displaced by her more powerful invader,
“will sit near the nest in pensive discontent,
“while the other seems quite comfortable in
“her new habitation. Yet this place of pre-
“eminence is not easily obtained ; for the in-
“stant the invader goes to snatch a momentary
“sustenance, the other enters upon her own,
“and always ventures another battle before she
“relinquishes the justness of her claim. The
“contemplation of a cliff thus covered with
“hatching-birds affords a very agreeable en-
“tertainment ; and as they sit upon the ledges
“of the rocks, one above another, with their
“white breasts forward, the whole group has
“not unaptly been compared to an apothecary’s shop.

“These birds, like all others of the rapacious
“kind, lay but few eggs ; and hence, in
“many places, their number is daily seen to
“diminish. The lessening of so many rapacious

“ compose a scene of more peculiar solemnity.
“ To walk along the shore when the tide is de-
“ parted, or to sit in the hollow of a rock when
“ it is come in, attentive to the various sounds
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“diminish. The lessening of so many rapa-
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“ cious birds may at first sight, appear a be-
“ nefit to mankind ; but when we consider how
“ many of the natives of our islands are sustain-
“ ed by their flesh, either fresh or salted, we
“ shall find no satisfaction in thinking that these
“ poor people may in time lose their chief sup-
“ port. The gull in general, as was said,
“ builds on the ledges of rocks, and lays from
“ one egg to three, in a nest formed of long
“ grass and sea-weed. Most of the kind are
“ fishy tasted, with black stringy flesh ; yet
“ the young ones are better food : and of these,
“ with several other birds of the penguin kind,
“ the poor inhabitants of our northern islands
“ make their wretched banquets. They have
“ been long used to no other food ; and even a
“ salted gull can be relished by those who know
“ no better. Almost all delicacy is a relative
“ thing ; and the man who repines at the lux-
“ uries of a well-served table, starves not for
“ want but from comparison. The luxuries of
“ the poor are indeed coarse to us, yet still
“ they are luxuries to those ignorant of better ;
“ and it is propable enough that a Kilda or a
“ Feroe man may be found to exist, out-doing
“ Apicius himself, in consulting the pleasures
“ of the table. Indeed, if it be true, that such
meat

“ meat as is the most dangerous earned is the
“ sweetest, no man can dine so luxuriously as
“ these, as none venture so hardily in the pur-
“ suit of a dinner.”

In Jacobson's History of the Feroe Islands, we have the following account of the method in which these birds are taken : “ It cannot be
“ expressed with what pains and danger they
“ take these birds in those high steep cliffs,
“ whereof many are two hundred fathoms high.
“ But there are men apt by nature and fit for
“ the work, who take them usually in two man-
“ ners : they either climb from below into
“ these high promontories, that are as steep as
“ a wall ; or they let themselves down with a
“ rope from above. When they climb from
“ below, they have a pole five or six ells long,
“ with an iron hook at the end, which they
“ that are below in the boat, or on the cliff,
“ fasten unto the man's girdle, helping him up
“ thus to the highest place where he can get
“ footing : afterwards they also help up ano-
“ ther man ; and thus several climb up as
“ high as possibly they can ; and where they
“ find difficulty they help each other up by
“ thrusting one another up with their poles.
“ When the first hath taken footing, he draws

“ the other up to him, by the rope fastened to
“ his waste and so they proceed, till they come
“ to the place where the birds build. They
“ there go about as well as they can, in those
“ dangerous places; the one holding the rope
“ at one end, and fixing himself to the rock;
“ the other going at the other end from
“ place to place. If it should happen that he
“ chanceth to fall, the other that stands firm
“ keeps him and helps him up again. But if
“ he passeth safe, he likewise fastens himself till
“ the other has passed the same dangerous place
“ also. Thus they go about the cliffs after
“ birds as they please. It often happeneth,
“ however, the more is the pity, that where
“ one doth not stand fast enough, or is not
“ sufficiently strong to hold up the other in his
“ fall, that they both fall down and are killed.
“ In this manner some do fall every year.”

Mr. Peter Clanson, in his description of Norway, states, that there was anciently a law in that country, that whosoever climbed so on the cliffs, that he fell down and died, if the body was found, before burial, his next kinsman should go the same way; but if he durst not, or could not do it, the dead body was not then to be buried in sanctified earth, as the person

person was too full of temerity, and his own destroyer.

“ When the fowlers,” continues Jacobson,
“ get, in the manner aforesaid, to the birds
“ within the cliffs, where people seldom come,
“ the birds are so tame that they take them
“ with their hands; for they will not readily
“ leave their young. But when they are wild,
“ they cast a net, with which they are pro-
“ vided, over them, and intangle them therein.
“ In the mean time, there lieth a boat beneath
“ in the sea, wherein they cast the birds killed;
“ and in this manner they can, in a short time,
“ fill a boat with fowl. When it is pretty fair
“ weather, and there is good fowling, the
“ fowlers stay in the cliffs seven or eight days
“ together; for there are here and there holes
“ in the rocks, where they can safely rest; and
“ they have meat let down to them with a line
“ from the top of the mountain. In the mean
“ time some go every day to them, to fetch
“ home what they have taken.

“ Some rocks are so difficult, that they can
“ in no manner get unto them from below;
“ wherefore they seek to come down thereunto
“ from above. For this purpose they have a
“ rope, eighty or a hundred fathoms long,
“ made

“ made of hemp, and three inches thick.
“ The fowler maketh the end of this fast about
“ his waist, and between his legs, so that he
“ can sit thereon ; and is thus let down, with
“ the fowling-staff in his hand. Six men hold
“ by the rope, and let him easily down, laying
“ a large piece of wood on the brink of the
“ rock, upon which the rope glideth, that it
“ may not be worn to pieces by the hard and
“ rough edge of the stone. They have be-
“ sides, another small line that is fastened to
“ the fowler’s body ; on which he pulleth, to
“ give them notice how they should let down
“ the great rope, either lower or higher ; or to
“ hold still, that he may stay in the place where-
“ unto he is come. Here the man is in great
“ danger, because of the stones that are loos-
“ ened from the cliff, by the swinging of the
“ rope, and he cannot avoid them. To re-
“ medy this, in some measure, he hath usually
“ on his head a seaman’s thick and shaggy cap,
“ which defends him from the blows of the
“ stones, if they be not too big ; but if they are,
“ which is frequently the case, it costeth him his
“ life : nevertheless, they continually put them-
“ selves in that danger, for the wretched body’s
“ food-sake, hoping in God’s mercy and protec-
“ tion,

tion, unto which the greatest part of them devoutly recommend themselves when they go to work : otherwise, they say, there is no other great danger in it, except that it is a toilsome and artificial labour ; for he that hath not learned to be so let down, and is not used thereto, is turned about with the rope, so that he soon groweth giddy, and can do nothing ; but he that hath learned the art, considers it as a sport, swings himself on the rope, sets his feet against the rock, casts himself some fathoms from thence, and shoots himself to what place he will : he knows where the birds are, he understands how to sit on the line in the air, and how to hold the fowling-staff in his hand ; striking therewith the birds that come or fly away : and when there are holes in the rocks, and it stretches itself out, making underneath as a cieling, under which the birds are, he knoweth how to shoot himself in among them, and there take firm footing. There, when he is in these holes, he maketh himself loose of the rope, which he fastens to a crag of the rock, that it may not slip from him to the outside of the cliff. He then goes about in the rock, taking the fowl either with his hands

or

“ or with the fowling-staff. Thus, when he
“ hath killed as many birds as he thinks fit, he
“ ties them in a bundle, and fastens them to a
“ little rope; giving a sign, by pulling, that
“ they should draw them up. When he has
“ wrought thus the whole day, and desires to
“ get up again, he sitteth once more upon the
“ great rope, giving a new sign that they
“ should pull him up; or else he worketh him-
“ self up, climbing along the rope, with his
“ girdle full of birds. It is also usual, where
“ there are not folks enough to hold the great
“ rope, for the fowler to drive a post sloping
“ into the earth, and to make a rope fast there-
“ to, by which he lets himself down without
“ any body’s help, to work in the manner
“ afore said. Some rocks are so formed that
“ the persons can go into their cavities by
“ land.

“ These manners are more terrible and dan-
“ gerous to see than to describe; especially if
“ one considers the steepness and height of the
“ rocks, it seeming impossible for a man to ap-
“ proach them, much less to climb or descend.
“ In some places, the fowlers are seen climbing
“ where they can only fasten the ends of their
“ toes and fingers; not shunning such places,
“ though

“ though there be an hundred fathom between
 “ them and the sea. It is a dear meat for these
 “ poor people, for which they must venture
 “ their lives; and many, after long venturing,
 “ do at last perish therein.

“ When the fowl is brought home, a part
 “ thereof is eaten fresh; another part, when
 “ there is much taken, being hung up for
 “ winter provision. The feathers are gather-
 “ ed to make merchandize of, for other ex-
 “ pences. The inhabitants get a great many
 “ of these fowls, as God giveth his blessing
 “ and fit weather. When it is dark and hazy
 “ they take the most; for then the birds stay
 “ in the rocks: but in clear weather, and hot
 “ sun-shine, they seek the sea. When they
 “ prepare to depart for the season, they keep
 “ themselves most there, sitting on the cliffs
 “ towards the sea-side, where people get at
 “ them sometimes with boats, and take them
 “ with fowling-staves.”

Strange and almost incredible as the above
 account may appear, the circumstances are too
 well known to leave the smallest doubt of this
 author's veracity; and the hardihood of the
 people who inhabit the rocky shores of the nor-
 thern parts of Europe, in these pursuits, is al-
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most proverbial; with many of them the birds so taken constitute the chief part of their food, and therefore possibly it is that necessity has taught them to put danger at defiance. The feathered inhabitants, or rather visitants of these rocks, are of different sorts, consisting of all the varieties of the gull, penguin, auk, puffing and guillemot kinds; they resort thither early in the spring, and the breeding season being over, they prepare for their departure towards the more southern climates at the commencement of winter, at which period it is that the people are most busily employed in these adventurous undertakings, making it, as it were, a kind of harvest for laying in a store for their winter subsistence.

But to return to the subject more immediately under consideration. The whole tribe of gulls are extremely rapid in flight, and will continue upon the wing hovering over the waters in search after prey for several hours together; they are extremely voracious, and appear to be always in want. They differ very much both in size and plumage, but the most general and most distinctive are,

The *great Grey Gull* which weighs twelve or fourteen ounces, and is from the point of the

the bill to the extremity of the tail, about twenty inches; and from the point of each wing when extended very near four feet. The bill is black, and near three inches long, the upper mandible something longer than the under, and a little hooked, or inclining downwards over it; the lower has a rising, or crooked set, towards the extremity: the eyes are grey, the nostrils in a sort of oblong form, the head very large; the necks of these birds in general are so short that when they walk or stand, they appear so much sunk, or drawn down towards the shoulders, as one would almost imagine they had not any neck at all.

The upper side of the back and neck, are grey, intermixed with a whitish brown; the back feathers black in the middle, and ash-coloured towards the edges, the wing feathers are of a dark brown, intermixed with black; the throat, breast, belly and thighs, white; the rump is of the same colour, with a few brown spots interspersed. The tail is five or six inches long, the outmost tip of the feathers, on the upper side, are joined by a sort of black cross bars, near two inches broad; the under part also varied with a few dusky coloured lines.

The legs and feet are yellow, or orange coloured, and the claws black.

The *Brown Gull* is considerably less than the former, the bill is about an inch and half long, black towards the extremity, the rest of a light brown or horn colour, shaped much like the former; the eyes are small, the circles yellow, the nostrils in an oblong form. The head and all the upper parts of the body and wings are of a dusky sort of brown colour, except some of the prime feathers of the wings, which are quite black. The belly and breast are of a more bright colour, interspersed with a considerable number of transverse brown lines. The tail is black, the legs and feet of a brownish yellow, the claws black.

This seems to be an uncommon bird, and not much known to authors that have written upon the subject, being classed among the gull kind, chiefly from the resemblance of its bill, and legs, Mr. Albin says it seems to be a non-descript bird.

The *Brown Headed Gull*, is much about the size of the former, the bill is red and sharp pointed: the under mandible bunching out into a small angle, the eyes black, the irides or circles red; encompassed with a broad circle of pale,

pale, or white feathers; the head and neck brown, the lower part towards the breast more dusky; the covert feathers of the wings and the back are of an ash-colour, the prime feathers black, with their outer edges, or webs white. The rest of the body white, tinged with a yellowish sort of pale green.

The tail is near five inches long, the legs and feet red, the claws black. They are common about Gravesend, in the River Thames.

The *Black and White Gull* is by far the largest of the gull-kind, weighing generally upwards of four pounds, and being twenty-five or twenty-six inches; from the point of the bill to the end of the tail; and from the tip of each wing, when extended; five feet and several inches. The bill appears compressed sideways, being more than three inches long, and hooked towards the end; like the rest of this kind, of a sort of orange colour; the nostrils in an oblong form; the mouth wide; with a long tongue, and very open gullet.

The irides of the eyes are of a very delightful red. The wings, and the middle of the back are black, only the tips of the covert and quill-feathers are white. The head, breast, tail, and other parts of the body are likewise white.

The

The tail is near six inches long, the legs and feet flesh coloured, and the claws black. It is a sea-fowl, and preys upon fishes, which have been taken whole from its stomach.

The *White Gull* is one of the smallest sort, and does not weigh above eight or nine ounces; the form of the bill is very much like those before described and of a red colour, with an angle on the lower mandible: the irides of the eyes white encircled with an ash colour.

The prime feathers on the wings black, the tips and edges white, extended near two inches beyond the tail; the back and covert feathers grey, or ash coloured; the head, breast, throat, and belly white, tinged with a pale or faint yellow. The legs are bare of feathers above the knees, and of a dusky green colour, the claws small, but more dusky and blackish.

They are said to be useful in gardens, where they destroy the insects, and worms; their feed is chiefly small fish.

The birds of this kind, are in many places called sea-mews, in others sea-cobs.

The *Skua Gull* is about the size of a raven; the upper parts of the head, neck, back and wings are of a deep brown, the under parts a pale, rusty ash colour. The legs are black,
rough,

rough, and warty, and the talons very strong and hooked. It is mostly a native of the North, though often found in England. It is a most formidable bird, as it not only preys upon fish, but upon all the smaller water-fowl, and even on young lambs. It has the fierceness of the eagle in defending its young; and when the inhabitants of the Feroe isles attack its nest, they hold a knife over their heads, on which the skua will transfix itself in its fall on the invaders. On the rocky island of Foula, one of the Shetland isles, it is a privileged bird, as it is said to defend the flocks from the eagle, which it pursues and beats off with great fury, whenever he presumes to visit the island.

The *Wagel Gull* has its whole plumage composed of a mixed brown, ash colour and white. It weighs about three pounds.

The *Herring Gull* resembles the black and white in every thing but size, and that the plumage on the back and wings is more inclined to ash colour than black; it weighs thirty ounces. The glaucous gull, which inhabits Norway, &c. is rather larger than the herring gull, but resembles it in most other respects; the silvery gull is the same size as the herring gull,

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gull, and not much different in plumage and manners.

The *Tarrock*, and the *Kittiwake Gulls*, also so nearly resemble each other, that some authors affirm the latter to be only the tarrock in a state of perfection. The head, neck, belly, and tail of the kittiwake are of a snowy whiteness, the back and wings are grey; and both species have behind each ear a dark spot; both species are about the same size, viz. fourteen inches, and the tarrock weighs seven ounces. Of the *arctic gull* the male has the top of the head black; the back, wings, and tail dusky; the rest of the body white; the female is entirely brown.

The *Pewit-gull*, or *Black-cap*, is so called from the head and throat being of a dark or black colour. The red-legged gull, the brown-throated gull, the laughing gull, which only differs from the others in having the legs black instead of red, are possibly only varieties of the same species. They are in length from fifteen to eighteen inches. The back and wings of these birds are in general ash coloured, and the rest of the body white. The young birds of these species are thought by some to be good eating.

The

The *Guat Gull*, which is found on the borders of the Caspian Sea, though distinguished by a black head, is quite a different species from our black cap, as it equals in size the Barnacle goose, and weighs between two and three pounds: its voice too is as hoarse as that of a raven.

The whole genus of *Petrels* are known by having instead of a back toe only a sharp spur or nail; they have also a faculty of spouting from their bills, to a considerable distance, a large quantity of pure oil, which they do by way of defence, into the face of any person who attempts to take them.

The *Fulmar* is the largest of the kind which is known in these climates. It is superior to the size of the common gull, being about fifteen inches in length, and in weight seventeen ounces. The bill is very strong, yellow, and hooked at the end. The head, neck, and all the under parts of the body, are white; the back and wings ash coloured, the quills dusky, and the tail white. It feeds on the blubber of whales, which supplies the reservoir, whence it spouts, with a constant stock of ammunition. This oil is esteemed by the inhabitants of the North as a sovereign remedy in many complaints.

plaints both external and internal. The flesh is also considered by them as a delicacy, and the bird is therefore in great request at St. Kilda. It is said that when a whale is taken, these birds will, in defiance of all endeavours, light upon it, and pick out large lumps of fat even while it is alive.

The *Shearwater* is something smaller than the preceding. The head, and all the upper part of the body, are of a footy blackness; and the under part and inner coverts of the wings white. These birds are found in the Calf of Man, and the Scilly Isles. In February they take possession of the rabbit burrows, and then disappear till April; they lay one egg, and in a short time the young are fit to be taken. They are then salted and barrelled. During the day they keep at sea fishing, and towards evening return to their young, whom they feed by discharging the contents of the stomach into their mouths.

The *Stormy Petrel* is about the size of a house swallow. The general colour of the plumage is black, except about the rump, which is white. They sometimes hover over the water like swallows, and sometimes appear to run on the top of it: they are also excellent divers.

divers. They are very clamorous, and are called by the sailors *Mother Cary's chickens*, who observe that they never settle or sit upon the water, but when stormy weather is to be expected. They are found in most parts of the world; and in the Feroe islands, the inhabitants draw a wick through the body of the bird, from the mouth to the rump, which serves them as a candle, being fed by the vast proportion of oil which this little animal contains.

There are about twenty species of foreign birds of this kind. In the high southern latitudes one is found, which is the size of a goose, and on that account is called the giant petrel. The upper parts of its plumage are pale brown, mottled with dusky white; the under parts are white.

Mr. Anderfon, in Capt. Cook's last voyage, mentions a petrel found at Kerguelen's Land; which the seamen called *Mother Carey's Goose*; it is by far the largest known; "they were," says he, "so tame, that at first we could kill them with a stick upon the beach. They are not inferior in size to an albatross, and are carnivorous, feeding on the dead car-

THE PENGUIN, AND ITS AFFINITIES.

AS we have just remarked, the whole tribe of gulls, even if we include them from the osprey to the sea-swallow, are long winged, swift flyers, that hover over the most extensive seas, and dart down upon such fish as approach too near the surface ; whereas the penguin kind are but ill fitted for flight, and still less for walking ; consequently we behold them the almost constant inhabitants of the sea, living upon fish which they can pursue to the greatest depths.

The awkward manner in which a duck either wild or tame, attempts to take wing must have struck every observer ; it is also remarkable with what softness and ease a gull or a kite waves its pinions, and with what a coil and flutter the duck attempts to move them ; how many strokes the latter is obliged to give, in order to gather a little air ; and even when it is thus raised, how soon, comparatively, it is fatigued.



The Auk.



The Penguin.



fatigued with the force of its exertions, and obliged to take rest. But the duck is not, in its natural state, half so unweildy an animal as the whole tribe of the penguin kind. Their wings are much shorter, more scantily furnished with quills, and their pinions placed too forward to be usefully employed. Therefore it is by no means wonderful that the largest of the penguin kind, that have a thick, heavy body to raise, cannot fly at all. Their wings serve them rather as paddles to help them forward, when they attempt to move swiftly; and in a manner walk along the surface of the water. Even the smaller kinds seldom fly by choice; they flutter their wings with the swiftest effort without making way; and though they have but a small weight of body to sustain, yet they seldom venture to quit the water where they are provided with food and protection.

The wings of the penguin tribe are unfitted for flight, and their legs are still more awkwardly adapted for walking. This whole tribe have all above the knee hid within the belly; and nothing appears but two short legs, or feet, as some would call them, that seem stuck under the rump, and upon which the animal is very awkwardly supported. They seem, when sitting,

or

or attempting to walk, like a dog that has been taught to sit up, or to walk on his hind legs. Their short legs drive the body in progression from side to side; and were they not assisted by their wings, they could scarcely move faster than a tortoise.

This awkward position of the legs, which so unqualifies them for living upon land, adapts them admirably for a residence in water. In that, the legs placed behind the moving body, pushes it forward with greater velocity; and these birds, like Indian canoes, are the swiftest in the water, by having their paddles in the rear. Our sailors, for this reason, give these birds a very homely, but at the same time expressive name.

Nor are they less qualified for diving than swimming. By ever so little inclining their bodies forward, they lose their centre of gravity; and every stroke from their feet only tends to sink them the faster. In this manner they can either dive at once to the bottom, or swim between two waters; where they continue fishing for some minutes, and then ascending, catch an instantaneous breath, to descend again to renew their operations. Hence it is that these birds, which are so defenceless, and so easily

easily taken by land, are impregnable by water. If they perceive themselves pursued in the least, they instantly sink, and shew nothing more than their bills, till the enemy is withdrawn. Their very internal conformation assists their powers in keeping long under water. Their lungs are fitted with numerous vacuities, by which they can take in a very large inspiration; and this probably serves them for a length of time.

As they never visit land, except when they come to breed, the feathers take a colour from their situation. That part of them which has been continually bathed in the water, is white; while their backs and wings are of different colours, according to the different species. They are also covered more warmly all over the body with feathers, than any other bird whatever; so that the sea seems entirely their element: and but for the necessary duties of propagating the species, it is probable we should scarcely have the smallest opportunity of seeing them, and should be utterly unacquainted with their history.

Of all this tribe, the *Magellanic Penguin* is the most singular and remarkable. In size it approaches that of a tame goose. It never

flies, as its wings are very short, and covered with stiff hard feathers, and are always seen expanded, and hanging uselessly down by the bird's sides. The upper part of the head, back and rump, are covered with stiff, black feathers; while the belly and breast, as is common with all of this kind, are of a snowy whiteness, except a line of black that is seen to cross the crop. The bill, which from the base to about half way is covered with wrinkles, is black, but marked crosswise with a stripe of yellow. They walk erect with their heads on high, their fin-like wings hanging down like arms; so that to see them at a distance, they look like so many children with white aprons. From hence they are said to unite in themselves the qualities of men, fowls and fishes. Like men, they are upright; like fowls, they are feathered; and like fishes, they have fin-like instruments, that beat the water before, and serve for all the purposes of swimming rather than flying.

They feed upon fish; and seldom come ashore, except in the breeding-season. As the seas in that part of the world abound with a variety, they seldom want food; and their extreme fatness seems a proof of the plenty in which they live. They dive with great rapidity,

dity, and are voracious to a great degree. One of them, described by Clusius, though but very young, would swallow an entire herring at a mouthful, and often three successively before it was appeased. In consequence of this gluttonous appetite, their flesh is rank and fishy; though the English sailors say, that "it is pretty good eating." In some the flesh is so tough, and the feathers so thick, that they stand the blow of a scimitar without injury.

They are a bird of society; and especially when they come on shore, they are seen drawn up in rank and file, upon the ledge of a rock standing together with the albatross, as if in consultation. This is previous to their laying, which generally begins in that part of the world in the month of November. Their preparations for laying are attended with no great trouble, as a small depression in the earth, without any other nest, serves for this purpose. The warmth of their feathers and the heat of their bodies is such, that the progress of incubation is carried on very rapidly.

In other countries, however, this bird nestles in a very different manner, and which most of our naturalists ascribe to the frequent disturbances it has received from man or quadrupeds,

in its former recesses. In some places, instead of contenting itself with a superficial depression in the ground, the penguin is found to burrow two or three yards deep: in others it is seen to forsake the level, and to clamber up the ledge of a rock, where it lays its egg, and hatches it in that bleak, exposed situation; and which precautions most probably have been adopted in consequence of dear-bought experience. In those countries where the bird fears for her own safety, or that of her young, she may providentially provide against danger, by digging, or even by climbing; for both which she is but ill adapted by nature. In those places however, where the penguin has had but few visits from man, her nest is made, with the most confident security, in the middle of some large plain, where they are seen by thousands. In that unguarded situation, neither expecting nor fearing a powerful enemy, they continue to sit brooding; and even when man comes among them, have at first no apprehension of their danger. Some of this tribe have been called, the booby, from the total insensibility which they shew when they are fought to their destruction. " But it is not considered that these " birds have never been taught to know the " dangers

“ dangers of an human enemy : it is against the
“ fox or the vulture that they have learned to
“ defend themselves ; but they have no idea of
“ injury from a being so very unlike their na-
“ tural opposers. The penguins, therefore,
“ when our sea-men first came among them,
“ tamely suffered themselves to be knocked on
“ the head, without even attempting an escape.
“ They have stood to be shot at in flocks, with-
“ out offering to move, in silent wonder,
“ till every one of their number has been de-
“ stroyed. Their attachment to their nests
“ was still more powerful ; for the females
“ tamely suffered the men to approach and take
“ their eggs, without any resistance. But the
“ experience of a few of those unfriendly visits,
“ has long since taught them to be more upon
“ their guard in chusing their situations ; or to
“ leave those retreats where they were so little
“ able to oppose their invaders.”

The penguin lays but one egg ; and, in fre-
quented shores, is found to burrow like a rab-
bit : sometimes three or four take possession of
one hole, and hatch their young together. In
the holes of the rocks, where Nature has made
them a retreat, several of this tribe, as Linnæus
assures us, are seen together. There the fe-
males

males lay their single egg in a common nest, and sit upon this their general possession by turns; while one is placed as a centinel, to give warning of approaching danger. The egg of the penguin, as well as of all this tribe, is very large for the size of the bird, being generally found bigger than that of a goose. But as there are many varieties of the penguin, and as they differ in size, from that of a Muscovy duck to a swan, the eggs differ in the same proportion.

As far as is at present known, the penguins consist of about nine species, and they are commonly estimated to hold the same place in the southern part of the world as the auks do in the north, neither of them having been observed within the tropics.

The one commonly denominated the *Putagonian Penguin*, is by much the largest, some of them weigh at least forty pounds, and are four feet three or four inches in length. The bill measures four inches and a half, but is slender. The head, throat, and hind part of the neck is brown, the back of a deep ash-colour, and all the under parts white. The best known *Penguin* is not bigger than a common goose, the upper part of whose plumage is black,

black, and the under white. At Falkland's island there are several varieties of penguins, some of which are crested, and are beautiful birds. There is a species at New Zealand not larger than a teal, and in almost all parts of the South Seas they are found in abundance, of all kinds and of all sizes.

OF THE AUK, PUFFIN, AND THEIR AFFINITIES.

UNDER this denomination comes a race consisting of about twelve different species.— They differ in size from the preceding, but possess nearly the same form, appetites, and manners; but the whole of this tribe are particularly distinguished, by the form of the bill, which is strong, convex, compressed at the sides, in general crossed with several furrows and in some degree resembling the coulter of a plough. Like the penguin, they frequent our shores, and have their legs placed behind. They have

have short wings, which are not totally incapable of flight; and they have round bills for seizing their prey, which is fish. They live upon the water, in which they are continually seen diving; and seldom venture upon land, except for the purposes of continuing their kind.

The principal of this tribe are the great Northern Diver, which is nearly of the size of a goose, and differs from the penguin, in being more slender and more elegantly formed; the grey speckled diver, which does not exceed the size of a Muscovy duck; and, except in size, greatly resembles the former; the auk, which chiefly differs from the penguin in size and colour, being smaller than a duck, and the whole of the breast and belly, as far as the middle of the throat, is white, the guillemot, which is about the same size, and which differs from the auk, in having a longer, a more slender, and a straighter bill. The scarlet throated diver may be distinguished by its name; and the puffin or coulterneb, is one of the most remarkable birds we know.

The great Northern Diver, as before observed, is full as large as a common goose; it has a black sharp bill, white at the point, and near five inches long: the head and neck of a
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sort of dusky brown colour, with a spot of white under its bill, and a white ring about its neck; below which the neck appears of a greenish colour. The prime feathers of each wing are black, except the exterior edges, which are white; the breast and belly are much of the same colour, the covert feathers of the wings, and the back, are irregularly spotted with white. The outward toe is near five inches long, and the feet are webbed like those of a goose.

The *Speckled Diver* is not quite so large as the preceding; it has a straight sharp bill, of a sort of livid or black colour, with feathers growing down as low as the nostrils, that part of the neck next to the head is covered with feathers set so exceeding thick, that it looks as large as the head itself, the lower parts of the body are white, the upper parts of a dusky sort of dark grey, speckled over with white spots, which are larger upon the wings than on the rest of the body. The fore toes are very long, especially the outermost, the back toes are but little, and short, the legs of a brown colour, and not very long, and are placed so back, that the bird seems scarce able to walk without erecting itself perpendicularly on its tail, which is very short. Some of these birds have a sort of ring,

about their necks, with blacker heads, and sprinkled with little white specks, and lines; others are more grey, or ash coloured, and varied with white specks, but no lines, which may perhaps be the distinction between the cocks and the hens.

The *Sea Diver* weighs about three pounds; the bill is upwards of two inches and half long; the whole body is covered with fine soft thick feathers, the head and neck, of a brown colour, but the back darker, each side of the body, more dusky, the belly and breast inclining pretty much to a silver colour. It has not any tail at all; the outermost quill-feathers of the wings, are blackish, the lesser rows underneath are white.

The bill appears compressed sideways, and is narrow, of a redish colour; the tongue a little cloven, the eyes dark with a sort of red mixture. The claws appear broad, resembling in some degree the nails of a man's hand, on the one side quite black, the other of a pale blue, or rather of an ash colour, the outermost toe longer than the rest, both the legs and toes are broad and flat. It feeds on small fishes, sea weeds, &c.

The

The *Crested Diver* is about the size of a duck; the bill, that part especially towards the head, is of a redish colour, and in length is something more than two inches; on the top of the head and neck, is a beautiful crest of feathers, those on the neck appearing like a collar or ruff, and seem a good deal bigger than they really are; those on the top of the head are black, those on the sides of the neck, are of a redish or cinerous colour; the back and wings are of a darkish brown, pretty much inclining to black, except some of the exterior edges of the wing feathers which are white. The breast and belly are of a light ash colour, it has no tail, the legs and toes broad, and flat, much like those before described. It has an unpleasant cry, and will occasionally, when angered or pleased, raise or fall the feathers of his crest.

The *Great Auk* is the size of a goose; its bill is black, about four inches and a quarter in length, and covered at the base with short velvet-like feathers. The upper parts of the plumage are black, and the lower parts white, with a spot of white between the bill and the eyes, and an oblong stripe of the same on the wings, which are too short for flight. The bird is also a very bad walker, but swims and dives well.

It is however observed by seamen, that it is never seen out of soundings, so that its appearance serves as an infallible direction to land. It feeds on the lump-fish and others of the same size; and is frequent on the coasts of Norway, Greenland, Newfoundland, &c. It lays its eggs close to the sea-mark.

The *Razor Bill* is not so large as the common tame duck, it has a large bill of a deep black colour, and near two inches long; with a deep incision or furrow in the upper mandible, which runs a little beyond the nostrils, and is in some degree covered with a sort of nappy thick down like velvet; the upper part being crooked at the end and hanging over the under, with transverse channelled lines running cross each, and a narrow white line passing from each eye to the corner of the upper mandible. The inner part of the mouth is of a fine yellow, and the eyes of a hazel colour. The head and upper part of the body are black; the under part of the chin more purple, the breast, belly, and tips of the covert feathers of the wings white. The tail is black, and about three inches long; the legs, feet, and toes pretty much of the same colour. They breed on the edges of steep

steep craggy rocks, by the sea-shore, laying large white eggs, spotted with black.

The *Guillemot* is about the size of a common duck, the upper parts of the body are of a dark brown colour, inclining to a black, except the tips of some of the wing feathers which are white, all the under parts of the body are also white. The tail is about two inches long.

It is a simple bird and easily taken, they generally go in companies with the coulternebs, and birds of that kind; and breed much in the same manner.

They breed on the inaccessible rocks, and steep cliffs in the Isle of Man, and likewise in Cornwall; on Prestholm Island near Beaumaris in the Isle of Anglesey; also on the Fern Island near Northumberland, and in the cliffs about Scarborough, in Yorkshire, and several other places in England. They lay exceeding large eggs, being full three inches long, blunt at one end, and sharp at the other, of a sort of bluish green colour, spotted generally with some black spots or strokes.

The *lesser Guillemot* weighs about sixteen ounces. The upper parts of its plumage are darker than those of the former species. The black guillemot

guillemot is entirely black, except a large mark of white on the wings. In winter, however, this bird is said to change to white; and there is a variety in Scotland not uncommon, which is spotted, and which Mr. Edwards has described under the name of the spotted Greenland dove. The marbled guillemot, which is found at Kamtschatka, &c. receives its name from its plumage, which is dusky, elegantly marbled with white.

The *Puffin* is about the size of a teal, it weighs near twelve ounces, and is generally twelve inches in length. The eyes are ash coloured or grey; the upper part of the head and body are black, the lower parts white; it has a sort of black ring that encompasses the throat; the sides of the head are whitish, with a cast of yellow and ash colour; the wings are made up of short feathers, and are very small; they fly swift while they keep near the surface of the water, by reason of wetting their wings as they proceed. They have black tails about two inches long: the legs and feet are of an orange colour, and their claws of a dark blue. It would be very difficult to describe the form of the bill of the puffin, which differs so greatly from

from that of any other bird. Those who have seen the coulter of a plough, may form some idea of the beak of this odd-looking animal. The bill is flat; but, very different from that of the duck, its edge is upwards. It is of a triangular figure, and ending in a sharp point; the upper chap bent a little downward, where it is joined to the head: and a certain callous substance encompassing its base, as in parrots. It is of two colours; ash-coloured near the base, and red towards the point. It has three furrows or groves impressed in it; one in the livid part, two in the red. The eyes are fenced with a protuberant skin, of a livid colour; and they are grey or ash coloured. These are marks sufficient to distinguish this bird by; but its value to those in whose vicinity it breeds, renders it still more an object of curiosity.

The puffin, like all the rest of this kind, has its legs thrown so far back, that it can hardly move without tumbling. This makes it rise with difficulty, and subject to many falls before it gets upon the wing; but as it is a small bird, not much bigger than a pigeon, when it once rises, it can continue its flight with great celerity.

Both

Both this and all the former build no nest; but lay their eggs either in the crevices of rocks, or in holes under ground near the shore. They chiefly chuse the latter situation; for the puffin, the auk, the guillemot, and the rest, cannot easily rise to the nest when in a lofty situation. Many are the attempts these birds are seen to make to fly up to those nests which are so high above the surface. In rendering them inaccessible to mankind, they almost render them inaccessible to themselves. They are frequently obliged to make three or four efforts, before they can come at the place of incubation. For this reason, the auk and guillemot, when they have once laid their single egg, which is extremely large for their size, seldom forsake it until it is excluded. The male, who is better furnished for flight, feeds the female during this interval; and so bare is the place where she sits, that the egg would often roll down from the rock, did not the body of the bird support it.

But the puffin seldom chuses these inaccessible and troublesome heights for its situation. Relying on its courage, and the strength of its bill, with which it bites most terribly, it either
makes

makes or finds a hole in the ground, where to lay or bring forth its young. "All the winter, (says Willoughby,) these birds, like the rest, are absent; visiting regions too remote for discovery. At the latter end of March, or the beginning of April, come over a troop of their spies or harbingers, that stay two or three days, as it were to view and search out for their former situations, and see whether all be well. This done, they once more depart; and about the beginning of May, return again with the whole army of their companions. But if the season happens to be stormy and tempestuous, and the sea troubled, the unfortunate voyagers undergo incredible hardships; and they are found by hundreds, cast away upon the shores, lean and perished with famine. It is most probable, therefore, that this voyage is performed more on the water than in the air; and as they cannot fish in stormy weather, their strength is exhausted before they can arrive at their wished-for harbour."

The puffin, when it prepares for breeding, which always happens a few days after its arrival, begins to scrape up an hole in the ground not far from the shore, and when it has some way penetrated the earth, it then throws itself

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upon its back, and with its bill and claws thus burrows inward, till it has dug a hole with several windings and turnings, from eight to ten feet deep. It particularly seeks to dig under a stone, where it expects the greatest security. In this fortified retreat it lays one egg; which, though the bird be not much bigger than a pigeon, is full the size of that of a hen.

When the young one is excluded, the parents' industry and courage is incredible. Few birds or beasts will venture to attack them in their retreats. When the great sea-raven, as Jacobson informs us, comes to take away their young, the puffins boldly oppose him. Their meeting affords a most singular combat. As soon as the raven approaches, the puffin catches him under the throat with its beak, and sticks its claws into his breast, which makes the raven, with a loud screaming, attempt to get away; but the little bird still holds fast to the invader, nor lets him go till they both come to the sea, where they drop down together, and the raven is drowned: yet the raven is but too often successful; and invading the puffin at the bottom of its hole, devours both the puffin and its family.

“ But, Goldsmith observes with much propriety, were a punishment to be inflicted for
“ immorality

“ immorality in irrational animals, the puffin
“ is justly a sufferer from invasion, as it is often
“ itself one of the most terrible invaders.
“ Near the Isle of Anglesey, in an islet called
“ Priefholm, their flocks may be compared, for
“ multitude, to swarms of bees. In another
“ islet, called the Calf of Man, a bird of this
“ kind, but of a different species, is seen in
“ great abundance. In both places, numbers
“ of rabbits are found to breed; but the puffin,
“ unwilling to be at the trouble of making a
“ hole, when there is one ready made,
“ dispossesses the rabbits, and it is not unlikely
“ destroys their young. It is in these unjustly
“ acquired retreats that the young puffins are
“ found in great numbers, and become a very
“ valuable acquisition to the natives of the
“ place. The old ones (I am now speaking
“ of the Manks puffin) early in the morning,
“ at break of day, leave their nests and young,
“ and even the island, nor do they return till
“ night-fall. All this time they are diligently
“ employed in fishing for their young; so that
“ their retreats on land, which in the morning
“ were loud and clamorous, are now still and
“ quiet, with not a wing stirring till the ap-
“ proach of dusk, when their screams once

“ more announce their return. Whatever
“ fish, or other food, they have procured in
“ the day, by night begins to suffer a kind of
“ half digestion, and is reduced to an oily
“ matter, which is ejected from the stomach
“ of the old ones into the mouth of the young.
“ By this they are nourished, and become fat
“ to an amazing degree. When they are ar-
“ rived to their full growth, they who are en-
“ trusted by the lord of the island, draw them
“ from their holes ; and, that they may more
“ readily keep an account of the number they
“ take, cut off one foot as a token. Their
“ flesh is said to be excessively rank, as they
“ feed upon fish, especially sprats and sea-weed ;
“ however, when they are pickled and pre-
“ served with spices, they are admired by those
“ who are fond of high eating. We are told,
“ that formerly their flesh was allowed by the
“ church on Lenten days. They were, at that
“ time, also taken by ferrets, as we do rabbits.
“ At present, they are either dug out, or drawn
“ out, from their burrows, with an hooked
“ stick. They bite extremely hard, and keep
“ so fast hold of whatsoever they seize upon, as
“ not to be easily disengaged. Their noise
“ when taken is very disagreeable, being like
“ the

“ the efforts of a dumb person attempting to
“ speak.

“ The constant depredation, which these
“ birds annually suffer, does not in the least
“ seem to intimidate them, or drive them away:
“ on the contrary, the people say, the nest
“ must be robbed, or the old ones will breed
“ there no longer. All birds of this kind lay
“ but one egg; yet if that be taken away,
“ they will lay another, and so on to a third:
“ which seems to imply, that robbing their
“ nests does not much intimidate them from
“ laying again. Those, however, whose nests
“ have been thus destroyed, are often too late
“ in bringing up their young; who, if they be
“ not fledged and prepared for migration when
“ all the rest depart, are left at land to shift for
“ themselves. In August the whole tribe is
“ seen to take leave of their summer residence;
“ nor are they observed any more till the return
“ of the ensuing spring. It is probable that
“ they sail away to more southern regions, as
“ our mariners frequently see myriads of water-
“ fowl upon their return, and steering usually
“ to the north. Indeed, the coldest countries
“ seem to be their most favoured retreats; and
“ the number of water-fowl is much greater in
“ those

" those colder climates, than in the warmer re-
 " gions, near the line. The quantity of oil
 " which abound in their bodies, serves as a de-
 " fence against cold, and preserves them in vi-
 " gour against its severity; but the same pro-
 " vision of oil is rather detrimental in warm
 " countries, as it turns rancid, and many of
 " them die of disorders which arise from its pu-
 " trefaction. In general, however, water-fowl
 " can be properly said to be of no climate;
 " the element upon which they live, being
 " their proper residence. They necessarily
 " spend a few months of summer upon land,
 " to bring up their young: but the rest of
 " their time is probably consumed in their mi-
 " grations, or near some unknown coasts, where
 " their provision of fish is found in the greatest
 " abundance."

There is another race, which, though in
 some manner may be considered as forming
 the shade between the gull and goose-kind, yet
 is most nearly allied by its habits and manners
 to the former, these may be distinguished from
 all others by the bill, which is round, hooked
 at the point, and toothed, both upper and under
 chap, like a saw; and the circumstances by
 which they may be said to unite the two ge-
 nuses

nuses are, they have round bills like the one, and unembarrassed legs like the other. In the shape of the head, neck, and body, they resemble them both.

The largest of this kind is the *gooseander*, which weighs about four pounds. The bill is red; the head very full of feathers on the top and back part. The plumage is various and beautiful. The head and upper parts are fine glossy black, the rump and tail ash-colour, and the under parts of the neck and body a fine pale yellow. Its manners and appetites entirely resemble those of the diver. It feeds upon fish, for which it dives; it is said to build its nest upon trees, like the cormorant.

The *dun diver* is less than the gooseander. The upper part of the head is reddish brown; the back and wings ash colour, and the lower part of the body white. It is found in the same places, and has the same manners with the gooseander. The *Red breasted Merganser* is still smaller, weighing only two pounds. The head and neck are black, glossed with green, the rest of the neck and the belly white; the upper part of the back is glossy black; the lower parts and the rump are striated with brown and pale grey; on the wings there are
white

white bars tipped with black, and the breast is reddish, mixed with black and white. The plumage of the female is less splendid; and they differ in another respect, viz. that the male has a very full and large crest, the female only the rudiment of one.

The *hooded Merganser* is a native of North America. It is about the size of a widgeon. The head and neck are dark brown, the former surrounded with a large round crest, the middle of which is white. The back and quills are black, the tail dusky; and the breast and belly white, undulated with black. The female is fainter in the colour of her plumage, and has a smaller crest.

The *Smew* measures from the end of the bill to the end of the tail near eighteen inches, and from the extremity of each wing when extended, upwards of two feet, and weighs about a pound and a half. It has a fine crest upon the head, which falls down towards the back part of it, under which, on each side of the head, is a black spot; the rest of the head and the neck are white, as is the under parts of the body; the back and the wings are of an agreeable mixture of black and white. The tail is about three inches long, of a sort of dusky ash colour,



The Bernacle.



The Swan.

colour, the feathers on each side shortening gradually. The bill is of a lead colour, at the extremity of which is a dirty coloured spot of white; it is something less than the generality of the duck kind, a little hooked with large open nostrils; and darkish coloured eyes; the legs are pretty much of the same colour of the bill.

The female of this bird has no crest; the sides of the head are red, the throat white, the wings of a dusky ash colour; in other respects it agrees with the male. They feed on fish, but are very rarely seen in England, except in very hard seasons, and then not more than three or four of them together.

OF THE GOOSE, OR DUCK KIND.

THIS genus comprehends above one hundred species, considerably differing in size or plumage from each other; many of them have been rendered domestic, but a still greater

proportion remain in their native untamed state. The whole of them are distinguishable by a strong flat bill, furnished at the end with an additional piece, termed a nail, and marked at the end with laminae or teeth. The swan, the goose, and the duck, are leaders of that numerous, useful, and beautiful tribe of birds, we have reclaimed from a state of nature, and have taught to live in dependence about us. From their universality we might dispense with a description, but, though nothing be so easy as to distinguish these in general from each other, yet the largest of the duck-kind approach the goose so nearly, that it may be proper to mark the distinctions, which have been thus correctly given :

“ The distinctive marks of the goose are, a
“ bigger body, larger wings, a longer neck,
“ a white ring about the rump, a bill thicker
“ at the base, more slender towards the tip,
“ with shorter legs, placed more forward on
“ the body. They both have a waddling
“ walk ; but the duck, from the position of
“ its legs, has it in a greater degree.” By
these marks, these similar tribes may be known
asunder ; and though the duck should be found
to equal the goose in size, which sometimes
happens

happens, they will be still found sufficient to distinguish them.

In many particulars however, they are perfectly similar, and have a nearer affinity to each other than the neighbouring kinds in any other department. Their having been tamed has produced alterations in each, by which they differ as much from the wild ones of their respective kinds as they do among themselves. There is nearly as much difference between the wild and the tame duck, as between some sorts of the duck and the goose; but still the characteristics of the kind are strongly marked and obvious; and therefore they can never be mistaken.

“ The bill is the first great obvious distinction of the goose kind from all the feathered tribe. In other birds it is round and wedge-like, or crooked at the end. In all the goose kind it is flat and broad, made for the purposes of skimming ponds and lakes of the mantling weeds that stand on the surface. The bills of other birds are made of an horny substance throughout; these have their inoffensive bills sheathed with a skin which covers them all over. The bill of every other bird seems formed for piercing or tearing;

“ ing ; theirs are only fitted for shovelling up
“ their food, which is chiefly of the vegetable
“ kind.

“ Though these birds do not reject animal
“ food when offered them, yet they can con-
“ tentedly subsist upon vegetables, and seldom
“ seek any other. They are easily provided
“ for ; wherever there is water, there seems
“ to be plenty. All the other web-footed
“ tribes are continually voracious, continually
“ preying. These lead more harmless lives :
“ the weeds on the surface of the water, or
“ the insects at the bottom, the grass by the
“ bank, or the fruits and corn in cultivated
“ grounds, are sufficient to satisfy their easy
“ appetites : yet these, like most other animals,
“ will not reject flesh, if properly prepared
“ for them ; it is sufficient praise to them that
“ they do not eagerly pursue it.

“ As their food is chiefly vegetables, so
“ their fecundity is in proportion. We have
“ had frequent opportunities to observe, that
“ all the predatory tribes, whether of birds or
“ quadrupeds, are barren or unfruitful. We
“ have seen the lion with its two cubs ; the
“ eagle with the same number ; and the pen-
“ guin with even but one. Nature that has
“ supplied

“plied them with powers of destruction,
 “has denied them fertility. But it is other-
 “wise with these harmless animals I am de-
 “scribing. They seem formed to fill up the
 “chasms in animated nature, caused by the
 “voraciousness of others. They breed in
 “great abundance, and lead their young to the
 “pool the instant they are excluded.”

As their food is simple, so their flesh is nourishing and wholesome. The swan was considered as a high delicacy among the ancients; and the goose was abstained from as totally indigestible. In modern times, at least in Europe, the taste for these birds has become quite reversed; the goose is now become the favourite: and the swan is seldom brought to table unless for the purposes of ostentation. But at all times the flesh of the duck was in high esteem; the ancients thought even more highly of it than we do; for we are contented to eat it as a delicacy, but they considered it as a medicine also; and Plutarch assures us, that Cato kept his whole family in health, by feeding them with duck whenever they threatened to be out of order.

The qualities possessed by this tribe of great fecundity, easy sustenance, and wholesome nourishment,

rishment, have been found of so considerable advantage to man, as to induce him to take these birds from a state of nature and render them domestic: and in which he has been eminently successful. How long they have been thus dependents upon his pleasures is not known; for from the earliest accounts, they were considered as familiars about them. The time must have been very remote; for there have been many changes wrought in their colours, their figures, and even their internal parts, by human cultivation. The different kinds of these birds, in a wild state, are simple in their colouring:—for as a modern author observes, “when
“one has seen a wild goose, a description
“of its plumage will, to a feather exactly
“correspond with that of any other.—But
“in the tame kinds no two of any species
“are exactly alike. Different in their size,
“their colours, and frequently in their general form. They seem the mere creatures of
“art; and, having been so long dependent
“upon man for support, they seem to assume
“forms entirely suited to his necessities.”

THE SWAN.

SO much difference is there between this bird when on land and in the water, that it is hardly to be supposed the same, for in the latter no one can possibly exceed it for beauty and grandeur. When it ascends from its favourite element, its motions are awkward, and its neck is stretched forward with an air of stupidity; but when seen smoothly sailing along the water, commanding a thousand graceful attitudes, moving at pleasure without the smallest effort, when it "proudly rows its state," as Milton has it, "with arched neck, between its white wings mantling," there is not a more beautiful figure in all Nature. In the exhibition of its form, there are no broken or harsh lines; no constrained or catching motions; but the roundest contours, and the easiest transitions; the eye wanders over every part with insatiable pleasure,

pleasure, and every part takes a new grace with new motion.

This bird has long been rendered domestic ; and it is now a doubt whether there be any of the tame kind in a state of nature. The wild swan, as it is called, though so strongly resembling this in colour and form, is yet a different bird ; for it is very differently formed within ; and it is at least one fourth less than the tame one ; the latter generally weighs full twenty pounds, while the other never exceeds sixteen. The colour of the tame swan is entirely white ; that of the wild bird, along the back and the tips of the wings, of an ash colour. But these are slight differences, compared to what are found upon dissection. In the tame swan, the windpipe sinks down into the lungs in the ordinary manner ; but in the wild, after a strange and wonderful contortion, like what we have seen in the crane, it enters through a hole formed in the breast-bone ; and being reflected therein, returns by the same aperture ; and being contracted into a narrow compass by a broad and bony cartilage, it is divided into two branches, which, before they enter the lungs, are dilated and as it were swollen out into two cavities.

“ Such

“ Such, says Buffon, is the extraordinary difference between these two animals, which externally seem to be of one species. Whether it is in the power of long continued captivity and domestication to produce this strange variety between birds otherwise the same, I will not take upon me to determine. But certain it is, that our tame swan is no where to be found, at least in Europe, in a state of nature.”

As it is not easy to account for this difference of conformation, so it is still more difficult to reconcile the accounts of the ancients with the experience of the moderns, concerning the vocal powers of this bird. The tame swan is one of the most silent of all birds; and the wild one has a note extremely loud and disagreeable. It is probable, the convolutions of the windpipe may contribute to increase the clangor of it; for such is the harshness of its voice, that the bird from thence has been called *the Hooper*. In neither is there the smallest degree of melody; nor have they, for above this century, been said to give specimens of the smallest musical abilities: yet, notwithstanding this, it was the general opinion of antiquity, that the swan was a most melodious

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bird; and that, even to its death, its voice went on improving. From the ancient and collected accounts by Aldrovandus, and the Abbe Gedoyn it appears that while Plato, Aristotle, and Diodorous Siculus, believed the vocality of the swan, Pliny and Virgil seem to doubt that received opinion. In this equipoise of authority, Aldrovandus appears to determine in favour of the Greek philosophers; and the form of the windpipe in the wild swan, so much resembling a musical instrument, inclined his belief still more strongly. In aid of this also, came the testimony of Pendasius, who affirmed, that he had often heard swans sweetly singing in the lake of Mantua, as he was rowed up and down in a boat; as also of Olaus Wormius, who professed that many of his friends and scholars had heard them singing. "There was," says he, "in my family, a very
"honest young man, John Restorph, a student in divinity, and a Norwegian by nation.
"This man did, upon his credit, and with the
"interposition of an oath, solemnly affirm that
"once, in the territory of Dronten, as he was
"standing on the sea shore, early in the morning, he heard an unusual and sweet murmur,
"composed of most pleasant whistlings and
"sounds;

“ sounds ; he knew not at first whence they
“ came, or how they were made, for he saw
“ no man near to produce them ; but looking
“ round about him, and climbing to the top
“ of a certain promontory, he there espied an
“ infinite number of swans gathered together
“ in a bay, and making the most delightful
“ harmony : a sweeter in all his life-time he
“ had never heard.” These were accounts
sufficient at least to keep opinion in suspense ;
though in contradiction to our own experience ;
but Aldrovandus, to put, as he supposed, the
question past all doubt, gives the testimony of a
countryman of our own, from whom he had the
relation. This man’s name was Mr. George
Braun, who assured him, that nothing was
more common in England, than to hear swans
sing ; that they were bred in great numbers in
the sea, near London ; and that every fleet of
ships that returned from their voyages from
distant countries, were met by swans, that came
joyfully out to welcome their return, and salute
them with a loud and cheerful singing ! “ It
“ was in this manner (it has been feelingly
“ ejaculated) that Aldrovandus, that great and
“ good man, was frequently imposed upon
“ by the designing and the needy : his unbound-

“ed curiosity drew round him people of
“ every kind, and his generosity was as ready
“ to reward falsehood as truth—Poor Aldro-
“ vandus ! after having spent a vast fortune
“ for the purposes of enlightening mankind ;
“ after having collected more truth and more
“ falsehood than any man ever did before him,
“ he little thought of being reduced at last to
“ want bread, to feel the ingratitude of his
“ country, and to die a beggar in a public hos-
“ pital !”

From all which we may fairly infer that our modern authorities, in favour of the singing of swans, are more suspicious than conclusive, since they are reduced to this Mr. George Braun, and John Restorff, the native of a country remarkable for ignorance and credulity. The original conceit of the swan's singing before its death, seems to have taken its rise from the fable that the soul of Orpheus was transmigrated into a swan ; from whence the Greeks and Egyptians have held that bird in great veneration ; whether it be from that circumstance or not, it is most probable the ancients had some mythological meaning in ascribing melody to the swan ; but as for the moderns, their testimony is too doubtful and their intentions too vague to deserve

deserve our regard. The swan, therefore, must be content with that share of fame which it possesses on the score of its beauty ; since the melody of its voice, without better testimony, will scarcely be admitted by even the credulous.

This beautiful bird is as delicate in its appetites, as elegant in its form. Its chief food is corn, bread, herbs growing in the water, and roots and seeds, which are found near the margin. At the time of incubation, it prepares a nest in some retired part of the bank, and chiefly where there is an islet in the stream. This is composed of water-plants, long grass and sticks ; and the male and female assist in forming it with great assiduity. The swan lays seven or eight eggs, white, much larger than those of a goose, with a hard, and sometimes a tuberos shell. It sits near two months before its young are excluded ; which are ash coloured when they first leave the shell, and for some months after. It is not a little dangerous to approach the old ones, when their little family are feeding round them. Their fears, as well as their pride, seems to take the alarm ; and they have sometimes been known to give a blow with

their pinion, that has broken a man's leg or arm.

It is not till they are a twelve-month old that the young swans change their colour with their plumage. All the stages of this bird's approach to maturity are slow, and seem to mark its longevity. It is two months hatching; a year in growing to its proper size; and if, according to the observations of Pliny, Buffon, and other naturalists, that those animals which are longest in the womb are the longest lived, the swan must exceed in length of years every other, for it is the longest in the shell of any bird we know, and indeed has been long remarkable for its longevity. Some say that it lives three hundred years; and Willoughby, who is in general diffident enough, seems to believe the report. A goose, as he justly observes, has been known to live an hundred; and the swan, from its superior size, and from its harder, and firmer flesh, may naturally be supposed to live still longer.

“ Swans were formerly held in such great
“ esteem in England, that, by an act of Ed-
“ ward the Fourth, none, except the son of
“ the king, was permitted to keep a swan, un-
“ less possessed of five marks a year. By a sub-
“ sequent

“sequent act, the punishment for taking their
 “eggs was imprisonment for a year and a day,
 “and a fine at the king’s will. At present they
 “are but little valued for the delicacy of their
 “flesh; but many are still preserved for their
 “beauty. We see multitudes on the Thames
 “and Trent; but no where greater numbers
 “than on the salt water inlet of the sea near
 “Abbottsbury, in Dorsetshire.”

As we have already stated, the wild swan is generally remarked to be of one uniform colour, and much inferior in size to the tame one, and yet some travellers have given a very different account of birds of this species; in particular Sir Richard Hawkins, in his voyage to the South Sea, says, they observed abundance of fowls as large and as big as swans, that came hovering about their ship, and as the wind calmed settled themselves in the sea, and fed upon the sweepings of the ship. “Being therefore, says he, desirous to see what they were, we threw out a line and hook, which one of these ravenous fowls presently seized, but swallowing the bait was himself taken, but the men that went to lay hold of him, were soundly paid for their attempt; for the bird laid on so fast and so hard upon their fingers, that they both
 .let

let go their hold, and came off shewing their hands both black and blue. After this manner they fished up several others, but were forced to fasten a cord about their necks, and so draw them up into the ship; for they were too fierce and furious to be handled. They proved very good meat, tender, and of kindly nourishment, they were of two colours, some white, and others grey; their beaks were more crooked than those of falcons; in each wing they had three joints, and both wings being extended to their full stretch, from the extremity of one to that of the other was more than two fathoms."

The *Cygnus*, or wild Swan, is however much less than the tame kind; it has a black bill, yellow legs, and white body; and has a whistling note; they inhabit the northern world, from the deserts of Iceland to the soft climates of Greece. They swarm in the lakes and marshes of Siberia, from whence they spread beyond Kamtschatka, probably to the coasts of America.—They breed in great numbers on the shores of Hudson's Bay; and in Louisiana the Indians sew the skins of these birds together for a covering, retaining the down on them:—the large feathers form diadems for their chiefs, and the lesser ones are wove into ornaments for females
of

of the higher rank ; and the skin of the legs, taken off whole, is used for purses, and has some resemblance to shagreen.

Linnaeus says, that wild swans frequently visit Sweden after a thaw, and are caught with apples, in which a hook is concealed. In hard winters this bird visits our coasts, in large flocks, but is not known to breed in Great Britain. Towards October they appear in great numbers among the Western Isles of Scotland, from whence they take their departure early in spring, returning Northward to breed.—Hence, in those parts they become the countryman's almanack ; their arrival denoting the approach of winter, as their departure prefigures the return of spring.

By the inward formation of its windpipe, it becomes enabled to utter its *whoogh, whoogh*; in a very loud and shrill, though not disagreeable, manner, especially when heard above one's head, and modulated by the wind. The Icelanders compare it to the notes of a violin ; but every sound must be pleasing which predicts a termination to their long and uncomfortable winter, and announces a return of the summer's genial influence.

Of other peculiarities, it must be noticed that the wild swan has twelve ribs on each side, the tame or mute, only eleven; the former carries its neck quite erect; the latter always swims with its arched.

It is from the whistling swan that the ancients have drawn their metaphors for melody; for the tame bird is never seen on any of those streams celebrated by the Latin bards; and it was but in metaphor that any powers of music were applied to them; for Virgil, when speaking of these birds as a naturalist, gives them their real note.

"Dant sonitum *rauci* per stagna loquacia Cygni."

The *tame* or *mute* *Swan* is distinguished from the former by the superiority of its size, and by the redness of its bill, though the tip and sides are black, as well as the skin between the eyes and bill. A black callous knob projects over the base of the upper mandible. Till the second year of their age, the plumage of these birds is ash colour, but it afterwards changes to a glossy whiteness. The swan begins laying in February, and continues every other day till she has deposited seven or eight eggs, generally on a bed of grass near the water, where she sits six weeks.

In

In the Northern parts of Europe, particularly in Siberia, where they abound, swans become very large, and are much esteemed for the table; and in our own country, in those days when the elegance of the table was estimated by the size, as much as the number of good dishes, they made a part of every grand festival. They have lost their ancient esteem among epicureans, but are still preserved for their beauty; as no bird has the command of such elegant attitudes on the water.

When the Swan was an object of luxury, every effort was used to confine it to the tables of the rich and great, by penal laws, as absurd and as unjustifiable in the eye of equity, or common sense as some similar ones of modern date; but by an alteration of taste, the goose has banished the swan from our tables, unless for the purpose of ostentation; for cygnets are frequently fattened at Norwich about Christmas, and sold for a guinea or upwards a piece.

The *Cygnoides*, as forming a middle line between the swan and the goose, has been not improperly stiled the swan-geese. This species is the swan-geese of Ray, from Guinea, and is also often called the Muscovy goose. They are frequent in Britain, and unite so readily with

the common goose, that their offspring will produce as certainly as if no such intermixture had taken place. They walk very erect, with the head much elevated; make an extraordinary harsh screaming noise, which they continue almost the whole day through, and without the least provocation or disturbance.

The *Grey-lag*, or wild goose has a large, elevated bill, of a flesh colour, tinged with yellow; the head and neck ash coloured: the breast and belly whitish, clouded with grey, as is also the back; and the legs of a flesh colour. This species breeds and hatches in the fens, producing eight or nine young ones at a time, where they make their residence the whole year in this country; but on the continent they are migratory, and change their place in very large flocks. They seem to be a general inhabitant of the globe. They are easily tamed;—but at the table are deemed superior to the domestic goose,

The *tame Goose* is merely the former, with some trifling varieties in colour, chiefly owing perhaps to its state of domestication.—It is sometimes found white, though much more frequently verging towards the grey; and it is a dispute among men of taste which should have the preference.

In

In general, geese breed but once in a year, sit about thirty days, and will rear seven; though if well fed they will produce eggs sufficient for three broods. Their longevity is very great; authors of respectability say, that it extends to no less than an hundred years. In rural economy they are an object of attention and profit; and in the fens of Lincolnshire they are reared in such multitudes, that many persons at the end of the breeding season will be possessed of between seven and eight thousand geese; vast numbers of which are annually driven to market with a proper proportion of superannuated geese and ganders, that in consequence of repeated pluckings, prove remarkably tough and dry.

A goose well fed in the common way, will weigh fifteen or sixteen pounds, but by the unnatural practice of cramming, may be increased to almost double that weight.

The creatures set apart for this beastly and unwholesome gorge, are nailed to the floor by the webs of their feet to keep them in a state of perfect inaction; and then stuffed with bean-meal and other fattening diet; but French refinement has increased the barbarity, by putting out the eyes of the wretched animal.

Another

Another operation is practised on these birds, which avarice can only palliate, and at which humanity must blush:—five times in a year they are totally stripped of their natural covering; the first time is at Lady-day, for feathers and quills; and the same is renewed for feathers only, between that time and Michaelmas.—Should the season prove cold, vast numbers die by this savage practice; to which the young ones especially yield with all the tokens of anguish and torment.

The *Bean Goose* is chiefly distinguished from the former by the resemblance of the nail of its bill to a horse-bean. The head and neck are of an ash brown, tinged with ferruginous; breast and belly dirty white; back, a plain ash colour, feet and legs saffron, and claws black. They appear in the fens of Lincolnshire in autumn, from whence they migrate in May to the wild parts of Europe. While in this country they feed much on green wheat.

The *Barnacle* appears in great flocks during winter on the north-west coasts of this kingdom, which they quit in February, and retire northward even as far as Spitzbergen to breed. The bill of this bird is black, as is also the legs and tail; the hind part of the head, the
neck

neck, and upper part of the breast and back, are of a deep black ; the rest white. About 200 years ago they received the name of *tree-geese*, from an absurd notion that they were generated out of wood, or rather a species of shell that is found sticking to the bottom and fragments of ships. They are easily made tame, and are very long lived. Linnæus joins this bird with the laughing-goose of Edwards, of which he says it is the male.—This latter is generally of a dirty white, marked with large spots of black, and the legs yellow ; visiting England in the same manner as the rest of this migratory genus.

The *Race-horse*, or *Logger-head-goose* is a large bird, weighing from twenty to thirty pounds ; the bill is of an orange colour ; the head, neck, and upper parts of the body of a deep ash colour ; the thighs inclining to blue ; the quills and tail black, on the bend of the wings, is a yellow knob, half an inch in length. They are unable to fly, from the shortness of their wings, but make amazing progress on the water ;—their flesh is very rank and unfavoury. They chiefly inhabit the Falkland Isles, Staten Land, &c. and mostly are seen in pairs.

The

The *Snow Goose* is a handsome bird, but the most stupid even of the goose race; and in many parts of Siberia suffer themselves to be taken in the most ridiculous manner. The general colour of the plumage is snow-white, except the first ten quills, which are black with white shafts; the legs of a deep red; the upper mandible of the bill scarlet, the under white. But the young are of a blue colour during the first year.

They are found plentifully in the spring months about Hudson's Bay, but go further northward to breed. The Americans about Carolina take them in vast numbers; and after plucking them, and taking out the entrails, they deposit the bodies in holes dug in the earth, with which they are covered, and by the influence of the frost kept perfectly sweet during the winter. In some parts they are decoyed into huts or hovels, by a person disguised in the skin of a white rein deer, whom they stupidly mistake for their leader, and are thus destroyed by hundreds at a time.

Another species of the goose is taken in great numbers in Siberia, called the great goose, weighing from twenty-five to fifty pounds Russia. The bill is black, the body dusky, and the legs scarlet.

The

The *Red-breasted Goose* is one of the most elegant of the race, though little known here; its residence being chiefly confined to the coasts of the Icy sea; they generally weigh about three pounds, are quite free from any fishy taste, and therefore highly esteemed for the table.

The *Ruddy Goose* is about the size of a mallard, and found in Russia and Siberia, from whence it migrates into India; its bill is black; the neck of an iron colour, encircled with a collar of black; the rest of the body an obscure or dusky red, except the tail, which is a greenish black. They frequently lay in hollow trees, and the male and female sit by turns; but all attempts to domesticate them have proved ineffectual. Their voice is not unlike the note of a clarinet. Their attachments are so very strong, that if the male is killed, the female will not quit the gunner till she has been two or three times shot at.

The small *Barnacle* frequents our coasts, as well as those of Holland and Ireland in winter:—they are of a brown colour, with the head, neck, and breast black, and a white collar. They are easily tamed, and when fatted are thought to be delicate food. In some seasons

they have been known to resort to the coasts of France in such numbers as to become a pest; and in the winter of 1740, they destroyed all the corn near the sea coasts, by tearing it up by the roots: a general war was declared against them, and though thousands were knocked on the head, it availed but little; nor were the inhabitants released from this scourge, till the north wind which brought them, ceased to blow, when they took their leave.

The *Canadensis* is a large brown goose, with a black neck and head, found in various parts of North America. At Hudson's Bay they are one of the chief articles of food; and are killed every year to the amount of three or four thousand, then salted and barrelled. The month of their appearance is called by the Indians *goose-moon*, and they are esteemed the harbingers of spring. In a favourable day, an Indian will kill 200 of them. On their return to the south also, great havoc is made among them by the Indians, who preserve them in the ground, as we have mentioned above. The flesh of the young birds is accounted good; and their feathers are an article of commerce, much in favour of those places where they breed plentifully. This species is much esteemed, as well in

in England, as in many parts of the Continent, as an ornament to pieces of water :—on the lakes of Versailles and Chantilly, numbers of them were common, mixing with the swans very freely ; they easily become familiar, and encrease pretty fast.

These, and many other varieties, are found in this kind ; which agree in the common characters of feeding upon vegetables, and being remarkable for their fecundity. Of these, however, the tame goose is the most fruitful. Having less to fear from its enemies, leading a securer and a more plentiful life, its prolific powers increase in proportion to its ease ; and though the wild goose seldom lays above eight eggs, the tame goose is often seen to lay above twenty. The female hatches her eggs with great assiduity ; while the gander visits her twice or thrice a day, and sometimes drives her off to take her place, where he sits with great state and composure.

But beyond that of all animals is his pride when the young are excluded : he seems then to consider himself as a champion not only obliged to defend his young, but also to keep off the suspicion of danger ; he pursues dogs and men that never attempt to molest him ; and,

though the most harmless thing alive, is then the most petulant and provoking. When, in this manner, he has pursued the calf or the mastiff, to whose contempt alone he is indebted for safety, he returns to his female and her brood in triumph, clapping his wings, screaming, and shewing all the marks of conscious superiority.

A young goose is generally reckoned very good eating; yet the feathers of this bird still farther increase its value. Of goose-feathers most of our beds in Europe are composed; in the countries bordering on the Levant, and in all Asia, the use of them are utterly unknown. They there use mattresses, stuffed with wool, or camel's hair, or cotton; and the warmth of their climate may perhaps make them dispense with cushions of a softer kind. But how it happens that the ancients had not the use of feather-beds, is surprising: Pliny tells us, indeed, that they made bolsters of feathers to lay their heads on; and this serves as a proof that they turned feathers to no other uses.

The feathers of Somersetshire are most in esteem; those of Ireland are reckoned the worst. Hudson's Bay also furnishes very fine feathers, supposed to be of the goose kind.

The

The down of the swan is brought from Dantzic. The same place also sends us great quantities of the feathers of the cock and hen; but Greenland, Iceland, and Norway, furnish the best feathers of all: and in this number we may reckon the Eider-down, of which we shall take notice in its place. The best method of curing feathers, is to lay them in a room in an open exposure to the sun, and, when dried, to put them into bags, and beat them well with poles to get the dust off. But, after all, nothing will prevent, for a time, the heavy smell which arises from the putrefaction of the oil contained in every feather; no exposure will draw this off, how long soever it be continued; they must be lain upon, which is the only remedy: and, for this reason, old feathers are much more valuable than new.

THE DUCK AND ITS VARIETIES.

IT has been universally admitted by all naturalists, that the tame duck is the most easily reared of all our domestic animals. The very instinct of the young ones direct them to their favourite element; and though they are conducted by a hen, yet they despise the admonitions of their leader.

This serves as an incontestible proof that all birds have their manners rather from nature than education. A falcon pursues the partridge, not because it is taught by the old one, but because its appetites make their importunate call for animal food; the cuckoo follows a very different trade from that which its nurse endeavoured to teach it: animals of the duck kind also follow their appetites, not their tutor, and come to all their various perfections without any guide. All the arts possessed by man,
are

are the result of accumulated experience; all the arts of inferior animals are self-taught, and scarce one acquired by imitation.

It is usual to lay duck eggs under a hen, because she hatches them better than the original parent would have done. " The duck seems
" to be an heedless, inattentive mother; she
" frequently leaves her eggs till they spoil, and
" even seems to forget that she is entrusted
" with the charge: she is equally regardless of
" them when excluded; she leads them to the
" pond, and thinks she has sufficiently provided for her offspring when she has shewn
" them the water. Whatever advantages may
" be procured by coming near the house, or attending in the yard, she declines them all;
" and often lets the vermin, who haunt the
" waters, destroy them, rather than take shelter
" nearer home. The hen is a nurse of a very
" opposite character; she broods with the utmost
" affiduity, and generally brings forth a
" young one from every egg committed to her
" charge; she does not lead them to the water
" indeed, but she watchfully guards them when
" there by standing at the brink. Should the
" rat, or the weazle, attempt to seize them,
" the hen instantly gives them protection; she
" leads

" leads them to the house when tired with
" paddling, and rears up the suppositious brood,
" without ever suspecting that they belong to
" another."

The *wild duck* differs, in many respects, from the tame; and in them there is still greater variety than among the domestic kinds. Of the tame duck there are not more than ten different sorts; and of the wild, Brisson reckons above twenty. The most obvious distinction between wild and tame ducks is in the colour of their feet; those of the tame duck being black, those of the wild duck yellow. The difference between wild ducks among each other, arises as well from the size as the nature of the place they feed in. Sea-ducks, which feed in the salt water, and dive much, have a broad bill, bending upwards, a large hind toe, and a long blunt tail. Pond-ducks, which feed in plashes, have a straight and narrow bill, a small hind toe, and a sharp pointed train. The former are called, by our decoy-men, *foreign ducks*; the latter are supposed to be natives of England. In this tribe, we may rank, as natives of Europe, the Eider Duck, which is double the size of a common duck, with a black bill; the Velvet Duck, not so large,
and

and with a yellow bill; the Scoter, with a knob at the base of a yellow bill; the Tufted Duck, adorned with a thick crest; the Scaup Duck, less than the common duck, with the bill of a greyish blue colour; the Golden Eye, with a large white spot at the corners of the mouth, resembling an eye; the Sheldrake, with the bill of a bright red, and swelling into a knob; the Mallard, which some have supposed to be the stock from whence our tame breed has probably been produced; the Pintail, with the two middle feathers of the tail three inches longer than the rest; the Pochard, with the head and neck of a bright bay; the Widgeon, with a lead-coloured bill, and the plumage of the back marked with narrow black and white undulated lines, but best known by its whistling sound: lastly, the Teal, which is the smallest of this kind, with the bill black, the head and upper part of the neck of a bright bay. These are the most common birds of the duck kind in this part of the globe; but their number and varieties in other climates are almost beyond conception; at the head of whose families may be reckoned the Muscovy Duck, or, more properly speaking, the Musk Duck, so called from a supposed musky smell, with naked skin

round the eyes, and which is a native of Africa; the Brazilian Duck, that is of the size of a goose, all over black except the tips of the wings; and the American Wood Duck, with a variety of beautiful colours, and a plume of feathers that falls from the back of the head like a friar's cowl.

Numerous, however, as the varieties of wild ducks may be, they all pursue the same mode, and live in the same manner, keeping together in flocks in the winter, and flying in pairs in summer, bringing up their young by the water-side, and leading them to their food as soon as out of the shell. Their nests are usually built among heath or rushes, not far from the water; and they lay twelve, fourteen, or more eggs before they sit: yet this is not always their method, as some, from continually encountering danger by their ground situation, have sometimes been obliged to change their manner of building; and their awkward nests are in those cases seen exalted on the tops of trees. This must be a very great labour to perform, as the duck's bill is but ill formed for building a nest, and giving the materials of which it is composed a sufficient stability to stand the weather. The nest, whether high or low, is generally composed

composed of singular materials. The longest grass, mixed with heath, and lined within with the bird's own feathers, usually go to the composition: however, in proportion as the climate is colder, the nest is more artificially made, and more warmly lined. In the Arctic regions, nothing can exceed the great care all of this kind take to protect their eggs from the intenseness of the weather. While the gull and the penguin kind seem to disregard the severest cold, the duck, in those regions, forms itself a hole to lay in, shelters the approach, lines it with a layer of long grass and clay, within that another of moss, and lastly, a warm coat of feathers or down. The Eider duck is particularly remarkable for the warmth of its nest; the external materials of which, are such as are in common with the rest of the kind; but the inside lining, on which the eggs are immediately deposited, is at once the softest, warmest, and the lightest substance with which we are acquainted, being no other than the inside down which covers the breast of the bird in the breeding-season, which the female plucks off with her bill, and furnishes the inside of her nest with a tapestry more valuable than the most skilful artists can produce.

As the whole of this tribe possess the faculties of flying and swimming, so they are in general birds of passage, and it is most probable perform their journies across the ocean as well on the water as in the air. Those that migrate to this country, on the approach of winter, are seldom found so well tasted or so fat as the fowls that continue with us the year round: their flesh is often lean, and still oftener fishy; which flavour it has probably contracted in the journey, as their food in the lakes of Lapland, from whence they descend, is generally of the insect kind.

As soon as they arrive in this country, they are generally seen flying in flocks to make a survey of those lakes where they intend to take up their residence for the winter. In the choice of these they have two objects in view; to be near their food, and yet remote from interruption. Their chief aim is to chuse some lake in the neighbourhood of a marsh where there is at the same time a cover of woods and where insects are found in greatest abundance. Lakes, therefore, with a marsh on one side and a wood on the other, are seldom without vast quantities of wild-fowl; and when a couple are seen at any time, that is a sufficient inducement to bring

bring hundreds of others. The ducks flying in the air are often lured down from their heights by the loud voice of the mallard from below. Nature seems to have furnished this bird with very particular faculties for calling. The wind-pipe where it begins to enter the lungs, opens in a kind of bony cavity, where the sound is reflected as in a musical instrument, and is heard a great way off. To this call all the stragglers resort; and in a week or a fortnight's time, a lake that before was quite naked is black with water-fowl, that have left their Lapland retreats to keep company with our ducks who never stirred from home.

"They generally", it has been repeatedly remarked, "chuse that part of the lake where they
"are inaccessible to the approach of the fowler,
"in which they all appear huddled together;
"extremely busy and very loud. What it is
"can employ them all the day is not easy to
"guess. There is no food for them at the
"place where they sit and cabal thus, as they
"chuse the middle of the lake; and as for
"courtship, the season for that is not yet come;
"so that it is wonderful what can so busily keep
"them occupied. Not one of them seems a
"a moment at rest. Now pursuing one another,

“ other, now screaming, then all up at once,
“ then down again; the whole seems one
“ strange scene of bustle with nothing to do.

“ They frequently go off in a more private
“ manner by night to feed in the adjacent mea-
“ dows and ditches, which they dare not ven-
“ ture to approach by day. In these nocturnal
“ adventures they are often taken; for, though
“ a timorous bird, yet they are easily deceived
“ and every spring seems to succeed in taking
“ them. But the greatest quantities are taken
“ in decoys; which, though well known near
“ London, are yet untried in the remoter parts
“ of the country.”

The manner of making and managing a decoy is thus described. “ A place is to be chosen for this purpose far remote from the common highway and all noise of people. A decoy is best where there is a large pond surrounded by a wood, and beyond that a marshy and uncultivated country. When the place is chosen, the pool, if possible, is to be planted round with willows, unless a wood answers the purpose of shading it on every side. On the south and north side of this pool are two, three, or four ditches or channels, made broad towards the pool, and growing narrower till they end in a point.

point. These channels are to be covered over with nets, supported by hooped sticks bending from one side to the other, so that they form a vault or arch growing narrower and narrower to the point, where it is terminated by a tunnel net, like that in which fish are caught in weirs. Along the banks of these channels so netted over, which are called pipes, many hedges are made of reeds slanting to the edge of the channel, the acute angles to the side next the pool. The whole apparatus also is to be hidden from the pool by a hedge of reeds along the margin, behind which the fowler manages his operations. The place being fitted in this manner, the fowler is to provide himself with a number of wild ducks made tame, which are called decoys. These are always to be fed at the mouth or entrance of the pipe, and to be accustomed to come at a whistle.

“As soon as the evening is set in, *the decoy rises*, as they term it, and the wild fowl feed during the night. If the evening be still, the noise of their wings, during their flight is heard at a very great distance, and produces no unpleasing sensation. The fowler, when he finds a fit opportunity, and sees his decoy covered with fowl, walks about the pool, and observes
into

into what pipe the birds gathered in the pool may be enticed or driven. Then casting hemp-feed, or some such seed as will float on the surface of the water, at the entrance and up along the pipe, he whistles to his decoy-ducks, who instantly obey the summons, and come to the entrance of the pipe, in hopes of being fed as usual. Thither also they are followed by a whole flock of wild ones, who little suspect the danger preparing against them. Their sense of smelling however is very exquisite; and they would soon discover their enemy, but that the fowler always keeps a piece of turf burning at his nose, against which he breathes; and this prevents the effluvia of his person from reaching their exquisite senses. The wild-ducks, therefore, pursuing the decoy-ducks, are led into the broad mouth of the channel or pipe, nor have the least suspicion of the man who keeps hidden behind one of the hedges. When they have got up the pipe, however, finding it grow more and more narrow, they begin to suspect danger, and would return back; but they are now prevented by the man, who shews himself at the broad end below. Thither, therefore, they dare not return; and rise they may not, as they are kept by the net above from ascending.

ing. The only way left them, then, is the narrow funnelled net at the bottom, into which they fly, and there they are taken.

“It often happens, however, that the wild-fowl are in such a state of sleepiness or dozing, that they will not follow the decoy ducks. Use is then generally made by a dog who is taught his lesson. He passes backward and forward between the reed-hedges, in which there are little holes, both for the decoy-man to see and for the little dog to pass through. This attracts the eye of the wild fowl; who, prompted by curiosity, advance towards this little animal, while he all the time keeps playing among the reeds, nearer and nearer the funnel, till they follow him too far to recede. Sometimes the dog will not attract their attention till a red handkerchief, or something very singular, be put about him. The decoy-ducks never enter the funnel-net with the rest, being taught to dive under water as soon as the rest are driven in.”

The general season for catching fowl in decoys, is from the latter end of October till February. The taking them earlier is prohibited by an act of George the Second, which imposes

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a penalty

a penalty of five shillings for every bird destroyed at any other season.

The Lincolnshire decoys are commonly let at a certain annual rent, from five pounds to twenty pounds a year; and some even amount to thirty. These principally contribute to supply the markets of London with wild-fowl. The number of ducks, widgeon, and teal, that are sent thither is amazing. "Above thirty thousand, Goldsmith affirms, have been sent up in one season from ten decoys in the neighbourhood of Wainfleet."

To this manner of taking wild-fowl in England, may be subjoined another still more extraordinary, frequently practised in China. Whenever the fowler sees a number of ducks settled in any particular plash of water, he sends off two or three gourds to float among them. These gourds resemble our pompions; but, being made hollow, they swim on the surface of the water; and on one pool there may sometimes be seen twenty or thirty of these gourds floating together. The fowl at first are a little shy of coming near them; but by degrees they come nearer; and as all birds at last grow familiar with a scare-crow, the ducks gather about these, and amuse themselves by whetting their bills

bills against them. When the birds are as familiar with the gourds as the fowler could wish, he then prepares to deceive them in good earnest. He hollows out one of these gourds large enough to put his head in; and making holes to breathe and see through, he claps it on his head. Thus accoutred, he wades slowly into the water, keeping his body under, and nothing but his head in the gourd above the surface; and in that manner moves imperceptibly towards the fowls who suspect no danger. At last, however, he fairly gets in among them; while they, having been long used to see gourds, take not the least fright while the enemy is in the very midst of them: and an insidious enemy he is; for ever as he approaches a fowl, he seizes it by the legs, and draws it in a jerk under water. There he fastens it under his girdle, and goes to the next, till he has thus loaded himself with as many as he can carry away. When he has got his quantity, without ever attempting to disturb the rest of the fowls on the pool, he slowly moves off again; and in this manner pays the flock three or four visits in a day. Of all the various artifices for catching fowl, this seems likely to be attended with the

greatest success, as it is the most practised in China.

The *Bochas*, or common wild-duck, from which the tame species take their origin, and to which they may be traced by unerring characters. The intermediate tail feathers of the drake are turned backwards and the bill is straight, two circumstances that universally prevail in the tame sort. The difference of taste is easily accounted for, from the differences of their food. They pair in the spring, build their nests among the rushes near the water, and lay from ten to sixteen eggs. The female is a very artful bird, especially where the safety of her young are at stake. In summer they fly in pairs, bring up their young by the water-side, and lead them to food as soon as they are out of the shell. When apprehensive of danger, they have been known to build their nests in a high tree, in a deserted crow's or magpie's nest. At moulting time, when they cannot fly, they are caught in great plenty; and in their annual migration to this country, they are taken in decoys in still greater abundance, particularly in Lincolnshire, the grand magazine of wild fowl in this kingdom.

The

The *Eider Duck*, or *Molliffema*, is double the size of the common duck, has a cylindrical bill; the male is white above, but black below and behind; the female greenish. This bird is found in the Western Isles of Scotland, but in great numbers in Norway, Iceland, Greenland, and many parts of North America, particularly in the Esquimaux islands. The flesh is every where much valued. The males are five years old before they come to their full colour, live to a great age, and will at length grow quite grey. The female lays from three to five eggs, large, smooth, glossy, and of a pale olive colour; though they sometimes lay so many as eight; and generally among stones or plants near the sea, but in a soft bed of down which they pluck from their own breasts. The natives take away from the nest both down and eggs; which the duck again replenishes; but if robbed a third time, the drake supplies the down: and after a third robbery, she wholly deserts the nest. Yet they are said to be so constant to their breeding places, that a pair has been observed to occupy the same nest for many years successively. The down, known by the name of eider, is imported in considerable quantities, on account of its light, warm, elastic

elastic quality, as a stuffing for coverlets for the infirm or luxurious. The natives are at much pains to collect this down, and as readily part with it for the enjoyments of brandy and tobacco.

The *Macula*, or scaup-duck, (so called from feeding on broken shell-fish,) is less than the common duck; it is a beautiful bird, but so diversified in colouring, that scarcely two in a hundred can be found alike.

The *Sheldrake*, (*Tadorna*) has a flat bill, a compressed forehead, a greenish black head, and the body variegated with white. It is an inhabitant of the northern world, so far as Iceland. They usually breed in deserted rabbit holes, and lay fifteen or sixteen roundish white eggs, and sit about thirty days. "They are very careful of their young, says Latham, and will carry them from place to place in their bills:"—They also shew much instinctive cunning in preserving them when attempted to be caught; for they will fly along the ground as if wounded, till the brood are got into a place of security. Their great beauty has induced many unsuccessful attempts to domesticate them; but they never thrive unless in the neighbourhood of salt water. The eggs
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Duck.



Chinese Drake.



Sheldrake.

are thought good, but the flesh of the bird is rank and unsavory.

The *Spectabilis*, which is the grey-headed duck of Edwards, and the king-duck of Pennant, is a very beautiful species, found at Hudson's Bay; they are pretty frequent in Siberia, and common in Greenland, where the flesh is accounted excellent; and of the skins sewed together, the natives make very comfortable garments; nor is its down less comfortable than that of the eider.

The *Nigra*, or *Scoter*, is the black diver of Ray; the male is totally black, the female brownish; the tail resembles a wedge; in the winter season they are found on the coasts of Great Britain; but are very numerous on the shores of France from November to March, where they feed upon a glossy bivalve shell, called *vaineaux*; and are caught by placing nets under the water where these shells abound; to obtain which, the birds dive to a great depth, and thus thirty or forty dozen are often taken in a tide. They swallow the shells whole, which have been found quite crumbled to powder among their excrements. They are sometimes kept tame, and fed upon soaked bread. Their flesh is far from being agreeable, and is of so
very

very fishy a taste that, perhaps by way of mortification, it is allowed to be eaten by Roman Catholics on fast days. This species is also to be met with in North America; and it abounds in the northern parts of Europe, especially on the great lakes and rivers of Siberia.

The *Hook-billed Drake* generally weighs two pounds or upwards, and is about two feet from the extremity of the bill to the end of the tail, and in breadth from the extension of each wing, near three feet. The bill is crooked, of a palish green, except the hook at the end, which is black; 'tis in length upwards of two inches.

The upper part of the neck, and the head, are of a dark green, with two small white speckled lines, one of which runs from the upper part of the bill, over the eye towards the back part of the head; the other runs from the bill to the lower part of the eye, around which, there is a circle of fine white feathers, with small white feathers under the chin. The breast, belly, and throat, are white, with small transverse spots, of a brownish red, running cross them. The six first of the prime feathers of the wings are white, the rest of a redish brown; the first row of covert feathers are blue tipped with white, the second are brown with

with white tips. The scapular feathers of the wings, the sides and the back, are of a redish brown, which appears dusted or speckled over with white.

The tail is black, with white tips, which turn up in a sort of circular curl towards the back. The legs and feet are of a fine orange colour.

The *Mallard* is about the size of the preceding; his bill, from the angles of the mouth to the tip, is about two inches and a quarter, and near an inch broad, with a roundish tip at the end; the head and upper part of the neck are of a beautiful shining green; the under eye-lids white, with a sort of half circle, or white ring, that passes round the fore part of the neck; the under part of the neck below the white ring to the breast, is of a glossy chestnut colour. The under part of the breast and belly are a sort of ash colour, sprinkled with a variety of dark specks, resembling drops; the back between the wings is of a cinerous red, in like manner sprinkled or speckled; the lower part towards the rump still darker; the rump itself of a sort of glossy purple. The sides of the body, and the longer thigh-feathers, are beautiful.

tified with transverse brown lines, with a bluish sort of mixture.

The scapular feathers of the wings, are of a fine silver colour, beautifully variegated with brown transverse lines; the second row of the quill-feathers tipped with white, with the outward webs of a fine bluish purple, and a border of black, running between the white and the blue; the rest of the wings variegated with silver coloured feathers, with some of their edges black, others of a dark purple.

The under part of the tail is black, the feathers on the upper part end in sharp points, the middlemost of which turn up in a circular form towards the back, and appear of a fine glossy purple colour. They are feathered down to the knees, the legs and feet are of a saffron colour.

The *Tufted*, or *Black-crested Duck*, is not quite so large as the wild Mallard, the shape of its body appearing more broad, short, thick and compressed; the bill broad, and about two inches long, is of a palish blue colour, black at the tip; the upper part of the head is of a blackish mixed purple, with a fine crest of feathers hanging down behind the head, of near two inches long; the nostrils are pretty large,
the

the iris of the eyes are of a gold colour, or fine yellow. The neck and upper part of the body are of a dark brown, much inclining to black.

The wings are short, with black covert feathers, the outward wings of the same colour, by degrees growing more towards a white; the second row of quills are all white, with black tips. The under part of the neck and the breast are black, the belly of a fine silver coloured white, as are also the thighs, and under parts of the wings. The tail is short, composed of black feathers; the legs are short, and the feet of a dark lead colour.

Mr. Albin says that at Venice, and other parts of Italy, it goes by the name of Cape Negro.

The *Upright Duck* is a bird, that walks in a more stately and erect posture, than any other of this kind, from whence it has its name, of the upright duck.

Its bill is of a greenish colour, with a sort of brown shade or cast; the circles of the eyes are white; the top of the head is quite black, under which, from the upper base of the bill, there runs a white circle which surrounds the top part of the head; the other parts of the

head are of a dark colour, intermixed with shades of red and green, which by the reflection of different lights, appear very beautiful. The neck is finely variegated with white, and black feathers; the wing-feathers are brown, with their outward edges white; the back is of a dark colour, intermixed with beautiful shades resembling the rainbow; the sides of the body underneath the wings, the thighs, and near the vent, are of a sooty coloured black; the belly and breast white; the legs and feet are of a sort of dusky yellow.

The *Muscovy Drake* is considerably larger than the generality of fowls of the duck kind; some of them being as large as a small sized goose; the bill is broad and short, of a redish colour, a little hooked at the end; upon the upper part of which, between the nostrils, there grows a small round fleshy excrescence, that appears red like a small cherry; the iris of the eyes are white, encircled with a fleshy sort of red substance, resembling that on the bill.

The upper part of the head and neck appear of a dusky colour, a little mottled with white; the sides of the wings and the back, are of a very uncommon mixture of red, green, brown, purple,

purple, and white; the under part of the body white, interspersed here and there with a few small brown feathers; the legs and feet of a pale red, or rather orange colour.

Their flesh differs from that of the common duck, and is said to be much more pleasant; they lay a great many eggs, and are excellent breeders; the hen has not the tuberos flesh growing on her bill, but with respect to colour, is much the same as the cock.

The ambassador from the duke of Holstein, in his travels to Muscovy, says, he saw there a sort of wild ducks, but bigger than ours, and as black as crows, with long necks, and forked bills. They are called by the Muscovites, *braclan*, and are scarcely ever seen but in the night time: their quills are harder and bigger than those of a crow.

The *Madagascar Duck* is in size very little larger than the common tame duck, and has a yellowish brown bill; the circles, or iris of the eyes, are red, the head and neck of a dark green, the breast and lower parts of the body more inclining to a dusky brown, the outward edges of the feathers red; the back is of a fine dark purple, intermixed with blue, the edges of the feathers red; the scapular feathers are some
of

of them green, with red edges; others more dusky, with a beautiful bluish mixture; the first row of the covert feathers are pretty much of the same colour, the second row green; the quill-feathers are all beautifully edged with red; the whole mixture of the colours shine with a curious and uncommon gloss, and appear exceeding beautiful. The legs and feet are of an orange colour.

They are brought from Madagasear, in the East Indies, and are now bred by the curious in several parts of England.

The *Shoveller* weighs very near two pounds, and is from the point of the bill to the end of the tail, one or two and twenty inches, and upwards of eighteen from the extremity of each wing when extended.

The bill is of a fine black, considerably broader at the tip than at the base; dented in the middle, and rising towards the end, with a small sort of crooked hook bending downwards, each mandible being toothed like a comb; the tongue is broad and fleshy, especially towards the end, the tip of which is of a sort of semi-circular form. The circles of the eyes are of a fine yellow; the neck and head of a shining dark green, the crop and under part of the neck white,

white, the upper part of the shoulders of the same colour, but interspersed with a variety of bold strokes; the under part of the body red, except the feathers under the tail, behind the vent, which are black; the back is of a brown colour, beautifully shaded with a shining green purple and blue, which varies according to the light in which it is viewed.

The first ten or twelve quill-feathers are quite brown; the next in the same row have all their extreme edges of a shining deep green, some of them varied with small white lines, others are green, with white tips, which, when viewed together, appear like a sort of cross bar upon each wing; the covert feathers are many of them of a fine blue, others more inclining to an ash colour; the tail is composed of party-coloured feathers, some of the borders entirely white, others on their extreme edges wholly black. The thighs are interspersed with a considerable number of dusky coloured transverse lines; the legs and feet of a fine red, resembling the colour of vermillion; the claws black.

The hen bears a near resemblance to the cock in the shape of its body, but differs very much in colour; the wings are pretty much like those of the male, only the colours are
more

more faint, and the shades not near so beautiful. The head, neck, and almost all the rest of the body, both for colour and shape, very much resemble that of the wild duck.

The membrane that connects the toes of each of them, are serrated about the edges, and their feet seem to be considerably less than the generality of the duck kind.

The *Golden Eye* chiefly breeds in Italy; it has a large head, and thick body, the neck short, and the bill broad, elevated towards the point, of a black colour, and is, if measured from the angles of the mouth, about an inch and three quarters long; the head, when variously exposed to the light, appears black, purple, and green, with a fine shining silky gloss; it has a white spot on each side of the mouth; the eyes are of a fine gold colour; the neck, breast, and belly, white; the space between the shoulders and the back is black; the wings of a fine beautiful mixture of black and white. The tail near three inches long; the legs short, of a yellowish colour; the toes pretty long, and more dusky.

It has a disagreeable fishy taste; they are sometimes, but very rarely, taken upon the English coasts.

The

The *Pintail*, though to appearance nearly the same size, seldom weighs more than a pound and a half; the wing-feathers are very long; the upper mandible is of a bluish black, mostly so about the nostrils, the under quite black. The neck is longer than the generality of birds of this kind; it is slender, and of a brown colour, very much resembling that of rusty iron, with a tincture of purple behind the ears; on each side of which from the hinder part of the head, there runs a white line, which passes down the sides of the neck; the feathers between the white lines are black, under which the neck is of an ash colour; both the back and neck varied with black and white transverse lines; the middle parts of the scapular feathers of the wings are black, their inner parts varied with a mixture of white, black and brown lines, some of the tips of the second row of feathers white; others party-coloured, with shades of glossy red. The breast and lower parts of the body as far as the vent, are white; the under part of the tail, black; the thighs more pale, and varied with small specks of black; the two middlemost feathers of the tail are extended much longer than the rest, running into sharp points, from whence it is said to take the name of pintail; the upper

part of the tail is of a sort of ash colour, the tips of the feathers black. The feet are of a lead colour.

The *Widgeon* weighs near a pound and a half; it has a sort of black nail at the end of the upper mandible of the bill, the other part of which is of a lead colour: the structure of the head and mouth very much resemble the common wild duck, only the head does not seem to be quite so large, in proportion to the body, which also appears of a finer shape, and the wings longer. The crown of the head towards the base of the bill, is of a pale pink colour, inclining to a redish white; the other parts of the head and the neck, are red; the sides of the body, and the upper part of the breast, are tinged with a very fair glossy, and beautiful claret colour, with a few small transverse lines of black. The feathers on the back are brown, the edges more pale or ash coloured: the scapular feathers, and those under the fore part of the wings, are finely variegated with small transverse black and white lines, beautifully dispersed like waves; the quill-feathers are some of them brown, with white tips, others have their outward webs of a blackish purple; other parts, especially those beyond the covert feathers,



Widgeons. Male & Female.



Teal. Male & Female.



thers, of a lovely fine blue ; some of the exterior feathers have their outward webs inclining to black, with a fine purple gloss, upon the borders of which there are a number of small light coloured spots ; the rest of the wing-feathers are of a beautiful parti-coloured brown and white. The upper part of the tail is ash-coloured ; the under part behind the vent, black. The legs and feet are of a dark lead colour, and the claws black.

They are pretty common in Cambridgeshire, the Isle of Ely, &c. where the male is called the Widgeon, and the female, the Whewer. They feed upon wild periwinkles, grass, weeds, &c. which grow at the bottom of rivers and lakes. Their flesh has a very delicious taste, not inferior to teal, or wild ducks.

The *Great-headed Widgeon* is larger than the common widgeon, and the make of its body is considerably thicker and shorter, weighing often near two pounds when well fed ; the bill is considerably larger and broader than that of the widgeon ; the head, and the greatest part of the neck, are of a fine fulvous red ; the feathers from the upper part of the head, come down in the form of an acute angle, or peak, to the middle of the base of the upper mandible,

ble, which is of a lead colour, tipped with black, the under mandible being entirely black; the circles, or iris of the eyes, are of a fine yellow. The small covert feathers of the wings, and likewise those on the middle part of the back, are beautifully variegated with brown and cinerous, elegant waving lines. The rump, and feathers under the tail, are black; so that the tail, which is of a sort of a greyish colour, and about two inches long, appears encircled with a blackish ring.

The middle part of the breast, and lower part of the belly, very much resemble the colour of the back, only the lines and points are of a more pale colour.

The quill-feathers are of a dark ash colour; and it is remarkable, all the feathers on the middle of the wings of this bird, are of one uniform colour, without the different variations commonly found in others of the kind.

The feet are of a lead colour, and the membranes that connect the toes, more dark and blackish.

The *Teal* is the smallest bird of the duck kind, and does not usually weigh more than twelve or fourteen ounces; it is about sixteen inches from the point of the bill to the end of the

the tail, and from the extremity of each wing, when extended, near two feet. The bill is of a dark brown colour, the head is considerably lighter, inclining to a bay, with a large white stripe over each eye, bending downwards, towards the back part of the head: the neck, back, and tail, are of a more dusky colour.

The breast is of a dirty coloured yellow, interspersed with dusky transverse lines; the belly more bright, with yellowish brown spots: the quill-feathers of the wings are of a dusky brown, with white edges; the covert feathers appear of a fine shining green, with their tips white: the scapular feathers are more inclining to an ash colour: the legs and feet are brown, the claws black.

They feed on water plants, seeds and grass.

The *French Teal* is about the size of the former; the cock of this tribe has a broad black bill; the eyes are of a sort of hazel colour; the upper part of the head and neck are of a light brown, or bay, with a shining green line running from each eye to the back part of the head, with a black spot intervening between, and a white line passing under the eyes: the back, the lower part of the neck, and sides underneath the wings, are beautified with fine waving

waving lines of black and white; the breast is more of a yellowish colour, spotted with black, that bears some resemblance to scales; the belly is of a dirty white, or grey.

The wings are of a brown, or dusky colour, some of them with white tips, and their outward edges black; others green, with yellowish edges; the covert feathers have some of them white tips, and the green coverts appear of a yellowish red; the whole beautifully variegated with different shades, that make a very agreeable appearance to the eye; the tail is sharp towards the end, and about three inches long: the legs and feet of a dusky pale colour.

Their flesh is of a delicate taste; it affords a fine nourishment to the body, and amongst those of its kind, is said to challenge the first place.

The *Chinese Teal* of Edwards, and the *Summer Duck* of Catesby, are elegant species; the former is a native of China, sometimes brought alive into England, but too tender to be reared in this country. The other inhabits Mexico and some of the West India islands; and is to be seen here at times in the menageries of the curious.

THE KING-FISHER.

THE KING-FISHER is a peculiar species of bird, and although it may be said to possess few characteristics of its own, yet it has a proportion of those of almost every other. Its appetites for prey, considering its size, are equal to those of the most rapacious kinds; it is no less attached to the watery element, than those we have described as so partial thereto; its plumage is not inferior in beauty to that of the pheasant or peacock. "It has," says a most respectable writer, "the shadings of the humming-bird, the bill of the crane, and the short legs of the swallow." In size, this bird is some little bigger than a sky-lark, but of a very clumsy shape; it has a strong bill near three inches long, sharp pointed and straight, black upon the upper chap, and at the point; the angle of the lower chap is of a redish kind of yellow;

yellow; and it has a broad, sharp-pointed tongue. The under part of the neck and belly is of a light orange shade; the under parts of the wings and tail of a darkish green colour, intermixed with discontinued bluish lines; it has a redish spot between the eyes and the nostrils which terminate beyond the eyes in a whitish colour; down the neck and middle of the back to near the end of the tail is of a bright pale bluish green, which appears exceeding splendid and delightful.

The quill-feathers, and those next them, have their exterior webs of the same beautiful colour, the interior more dusky; the smaller rows of the wing-feathers have bluish tips, all except those covering the base of the wing; the longer feathers that spring from the shoulders, and cover the back, are of a bluish green. The tail is about an inch and half long, of a dark blue, but more obscure towards the end.

The legs and feet are short, and of a red colour, and the claws black: there is something singular in the disposition of the joints and toes, the three lower joints of the outmost being joined to the middlemost. The inner toe is the least, and not above half the length of the middlemost, and the outer one is almost equal to the middlemost;

middlemost ; the back-toe is somewhat bigger than the inner fore-toe. Gefner says the fat of this bird is red, and Mr. Willoughby affirms the same. From the smallness of its size, its slender short legs, and the beautiful colour with which its plumage is adorned, we are naturally inclined to be prejudiced in its favour, and it is with difficulty we are led to suppose it one of the most rapacious little animals that hover over the deep ; yet such is the fact, for it feeds entirely on fish, and is for ever on the wing in pursuit of its prey, and of which it takes surprising quantities, considering its diminutiveness ; it generally hovers about the banks of the rivers, and takes its prey by balancing itself at a certain distance above the water until the fish appears in sight, when it darts into the water after it, and will dive to a considerable depth, seizing its prey with inevitable certainty. While this bird remains suspended in the air in a clear sun-shiny day, its plumage exhibits a beautiful variety of the most dazzling and brilliant colours. And from this extraordinary beauty, it is natural to suppose, all the wonderful fables that have been framed of this bird, have originated ; for, as it has been judiciously remarked, “ wherever there is any thing

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“ uncommon, fancy is always willing to increase
“ the wonder.”

It has been boldly affirmed of this bird, that she builds her nest in the water, and thus in a few days hatches and produces her young; and to be uninterrupted in this task, it was added, that she possessed a charm to allay the fury of the waves; and that during this period, the mariner might sail with the greatest security. The ancient poets are full of these fables, and their historians are not exempt from them. Cicero is said to have written a long poem in praise of the *halcyon*; of which, however, there remain but two lines. The emperor Gordian is also said to have written a poem on this subject; but of this there are not any remains. These fables were likewise adopted by one of the earliest fathers of the church: “ Be-
“ hold,” says St. Ambrose, “ the little bird
“ which, in the midst of the winter, lays her
“ eggs on the sand by the shore. From that mo-
“ ment the winds are hushed; the sea becomes
“ smooth, and the calm continues for fourteen
“ days. This is the time she requires; seven days
“ to hatch, and seven days to foster her young.
“ Their Creator has taught these little animals
“ to make their nest in the midst of the most
“ stormy

“ stormy season, only to manifest his kindness
“ by granting them a lasting calm. The sea-
“ men are not ignorant of this blessing ; they
“ call this interval of fair weather their *halcyon*
“ *days* ; and they are particularly careful to
“ seize the opportunity, as then they need fear
“ no interruption.” This, and an hundred
other instances, might be given of the credulity
of mankind with respect to this bird ; they en-
tered into speculations concerning the manner
of her calming the deep, the formation of her
nest, and her peculiar sagacity ; at present we
do not speculate, because we know, with respect
to our king-fisher, that most of the assertions are
false. It may be alledged, indeed, with some
shew of reason, that the halcyon of the ancients
was a different bird from our king-fisher ; it
may be urged, that many birds, especially on the
Indian ocean, build a floating nest upon the sea ;
but still the history of the ancient halcyon is
clogged with endless fable ; and it is but an in-
different method to vindicate falsehood by shew-
ing that a part of the story is true.

The king-fisher with which we are ac-
quainted at present, has none of those powers
of allaying the storm, or building upon the
waves ; it is contented to make its nest on the

Dd 2

“ banks

banks of rivers, in such situations as not to be affected by the rising of the stream. When it has found a place for its purpose, it hollows out with its bill a hole about a yard deep; or if it finds the deserted hole of a rat, or one caused by the root of a tree decaying, it takes quiet possession thereof. This hole it enlarges at the bottom to a good size; and, lining it with the down of the willow, lays its eggs there without any farther preparation.

Its nest, or rather hole, is very different from that described by the ancients, by whom it is said to be made in the shape of a long-necked gourd of the bones of the sea-needle. The bones, indeed, are found there in great quantities as well as the scales of fish; but these are the remains of the bird's food, and by no means brought there for the purposes of warmth or convenience. The king-fisher, as Bellonius says, feeds upon fish, but is incapable of digesting the bones and scales, which he throws up again as eagles and owls are seen to do a part of their prey. These fill the bird's nest of course; and, although they seem as if designedly placed there, are only a kind of nuisance.

In

In these holes, which, from the remains of fish brought there, are very foetid, the kingfisher is often found with from five eggs to nine. There the female continues to hatch even though disturbed; and though the nest be robbed, she will again return and lay there. "I have had one of those females brought me," says Reaumur, "which was taken from her nest about three leagues from my house. After admiring the beauty of her colours, I let her fly again, when the fond creature was instantly seen to return back to the nest where she had just before been made a captive. There, joining the male, she again began to lay, though it was for the third time, and though the season was very far advanced. At each time she had seven eggs. The older the nest is, the greater quantity of fish-bones and scales does it contain: these are disposed without any order; and sometimes take up a good deal of room."

The female begins to lay early in the season; and excludes her first brood about the beginning of April. The male, whose fidelity exceeds even that of the turtle, brings her large provisions of fish while she is thus employed; and she, contrary to most other birds, is found plump

plump and fat at that season. The male, that used to twitter before this, now enters the nest as quietly and privately as possible. The young ones are hatched at the expiration of twenty days; but are seen to differ as well in their size as in their beauty.

As the ancients have had their fables concerning this bird, so have the modern vulgar. It is an opinion generally received among them that the flesh of the king-fisher will not corrupt, and that it will even banish all vermin. This has no better foundation than that which is said of its always pointing, when hung up dead, with its breast to the north. The only truth which can be affirmed of this bird when killed is, that its flesh is utterly unfit to be eaten; while its beautiful plumage preserves its lustre longer than that of any other bird we know.

The *Smyrna King-fisher* is near three times as large as the former, and has a long bill, very thick at the base, of a red colour, ending in a sharp point; the iris of the eyes are white. The top of the head and neck, the lower part of the belly and thighs are brown; a broad stripe of white runs across the breast, and terminates under the scapular feathers of the wings; the wings,

wings, back, and tail, are all of a fine dark green, the legs and feet of an admirable fine red.

They are found by the river sides at Smyrna, as the former are here in England.

Barbot describes a bird found on the coasts of South Guinea, whose wings and upper part of his body, he says are entirely blue, inclining to sky colour; his breast of a dark yellow, mixed with some red and blue feathers, his bill very thick and long, his feet of a redish colour, which seems to be a bird of this kind.

The *large Bengal King-fisher* is as large as the common thrush; the bill is very thick at the base, of a fine scarlet colour, and near three inches long, ending in a sharp point like the former; the iris of the eyes of a beautiful yellow; the head, the upper part of the neck, and back, brown; the breast, throat, and part of the belly white, with five large brown spots on each side; the wings, the lower part of the back, and the tail, of a fine bright coloured bluish green, the covert feathers of the wings excepted, which are pretty much the same colour of the neck and upper part of the back; the legs and toes short, and of an orange colour.

M. Pomet

M. Pomet describes a bird found in the kingdom of Cambaya, which he calls the Indian king-fisher, and says, when they are going to breed, they throw out of their mouths a white froth, with which they build a nest, the bigness and shape of a round dish, where they lay their eggs, and hatch their young ones; these nests are of a white colour, tending to yellow, and of a hard, dry consistence, the taste being insipid, and almost like that of vermicelli. These nests, as well as those of a certain bird very much like a swallow, are brought from the East Indies into France and other parts of Europe, where for their fine flavour they are esteemed a very great delicacy, are said to afford very good nourishment, being boiled in water with a fowl and ginger.

The *small Bengal King-fisher* is about the size of the common English king-fisher; the bill a fine scarlet colour, shaped like the former, with a spot of yellow upon the forehead, adjoining to it, and a large spot of white under the throat, with a broad black line intervening from the bill, and encompassing the eyes. The top of the head is of a dirty coloured red, under which there runs a dark blue line, which is separated from the back by a broad
stripe



FIG. 89.

Avocetta.



FIG. 90.

Crown Bird.

stripe of white; the back is a dark blue, the wings something darker, the rump and upper part of the tail red, the under side of the belly, thighs, and tail, of a very beautiful yellow; the legs and feet much like the former, only of a deeper colour, and more inclining to a scarlet.

This species of birds are said to dive under the water for their prey, which is chiefly small fishes.

THE AVOSETTA.

WE have traced through the various tribes of birds which are most generally known, or at least such of whom as any considerable part of their natural habits and manners have been discovered, without, as already observed, pretending to lay down a positive axiom as to their classes; for some, which we may have thought to bear strong affinities, may possibly be, in reality, very distinct families; but if that should

be the case, very few, in the preceding pages, can be charged with being out of their places, since they are, in general, arranged according to their similarities; a system, we presume, more calculated to give satisfaction, than to have followed any theoretical system founded upon imaginary proofs of semblance and ideal speculation.

It may, however, be thought congenial with our plan, to give also some little account of those who are distinguishable for any peculiarities; and little it must be, as in most cases we can do no more than give a description of their size and plumage; but even that will be some satisfaction to the curious.

The first we shall mention of this kind is the *Avosetta*, which is principally found near Milan in Italy; frequently at Rome and Venice, and sometimes on the eastern coasts of Suffolk and Norfolk, in the winter. The body is about the size of a pigeon, but very slender made, and tall, being from the tip of the bill to the end of the tail, fourteen inches long, and weighs about nine ounces; his beak is black, flat, and sharp at the end, hooking upwards, which is peculiar to this bird only, about four inches long; the tongue short, and not cloven.

He

He has a fine stately pace, or way of walking; his head is not large, but round, and black on the top, and a little way down the back part of the neck; the body entirely white on the under side; the back and covert feathers white, spotted with dusky brown spots; the legs long, of a lovely bright azure colour, bare of feathers above the knees, the claws black, and very small; it has a back toe, which is also small.

From its being bare of feathers above the knee, we may naturally conclude, that it lives by wading in the waters, and that it has also some affinity to the crane kind, by its slender figure; yet, from them it differs in one most essential characteristic, namely, that of being web-footed like the duck. Johnson says, that it has a chirping, pert note; but with its other habits, he gives us not the smallest account, and which, indeed, still remain unknown.

From all the circumstances that have hitherto been collected, the *Corrira* of Aldrovandus seems to be related to the above; but of this, yet less is known than of the former, and all the information we have is from that author, who says, that it has the longest legs of all web-footed fowls, except the flamingo and avosetta; that the bill is straight, yellow, and black at

the ends; that the pupils of the eyes are surrounded with two circles, one of which is bay, and the other white: below, near the belly, it is whitish; the tail, with two white feathers, black at the extremities; and that the upper part of the body is of the colour of rusty iron.

THE CROWN BIRD.

IS a fine stately East India fowl, about the size of an English turkey; the body is covered with long slender feathers resembling hair, of a dark green colour, with a purplish cast on the sides and back; with a few broad stripes of red upon the wings, tending downwards; the thighs are a sort of buff colour, the claws black. It has a large bluish, or gold coloured tuft on the top of the head, grows up in shafts or stalks, with little balls upon the tops, that bear some little resemblance to an earl's coronet, according to some; others say it is more like the tuft on the head of a Virginian nightingale. A little above the bill, upon the fore part of the head, is a small red comb, and two red marks, resembling ears, on each side of the head; the bill is short and thick, bending downward, of a yellow colour.

This seems to be the bird described by Mr. Tavernier in his travels into India; great numbers

bers of which are found in the territories of Cambaya, Broudra, &c. which in the day time walk about the fields, but in the night roost upon the trees. The flesh of the young ones, he says, is white, and well tasted. In those parts where the Mahometans govern, you may catch them without danger; but in those territories where idolatrous rajahs are masters, it is very dangerous to kill them, or any other bird or animal; for the banians count it sacrilege, and will severely punish any they can seize. They whipped a Persian merchant to death, and took all his money, to the value of three hundred thousand rupees, for shooting a peacock.

The *Mexican Crown Bird* has a thick short bill, of a sort of flesh colour, or tawny, with a large crest of green feathers upon the head, which it raises and falls at pleasure. The head, neck, back, breast, and part of the belly and thighs, are of a brownish dusky colour. The four first quill-feathers of the wings are a fine scarlet, the last having fine long white marks upon the outward web: the rest of the quill-feathers and the tail are purple, as are also the covert and scapular feathers of the wings, with a fine mixture of green, interspersed through
the

the whole. The legs and feet are bluish, or lead colour. It is in size pretty near to that of a fieldfare.

Barbot, in his description of his voyage to South Guinea, describes this as a fine bird, of various colours, as white, black, brown, red, sky colour, blue, &c. having a long tail, the feathers whereof, he says, the blacks wear on their heads. He describes some of them which are of a gold colour, and others with charming blue tufts on their heads, much in the form of a Virginian nightingale's.

THE CARASOW:

THIS bird takes its name from a part of the West Indies, from whence it is brought; the Indians call it the Mountain Bird, and some travellers give it the name of a wild turkey; it is a bird which is easily made tame and sociable, so as to accompany with other fowls.

This

This beautiful bird is black upon the head and neck, resembling velvet, and has a high crest of curious ruffled black feathers like a half circle, which rises spirally from the top of its head, with a white circle running cross them; these it can erect, or let fall at pleasure. The rest of the body, excepting the lower part of it, of the cock, are black; that of the hen rather of a dusky brown; the tail is black, with four bars of white running cross it near the extremity, at equal distances. The bill is thick on the upper mandible, of which there is a round excrescence as big as a hazel nut; the eyes are black, and the legs pretty long, and the size of its body not a great deal less than a common turkey.

M. W. in his description of the kingdom of Mosquito, calls it a small Indian turkey, and says they are very welcome game to the hungry traveller, who may shoot all he meets with, one after another, they being so very tame, that they will scarcely fly away; they keep frequently ten or a dozen in a flock, and are excellent meat.

The author of the *Buccaniers of America* takes notice of this bird under the name of *Oecos*, and says it very much resembles the
European

European turkey; and that the feathers of some of the male kind are inclining to a red, but those of the female to black.

Dr. Gemelli says they have abundance of them in New Spain, which about the new of the moon are easily killed, for when one falls, he says, there is no danger of the rest flying away at the noise of the guns.

The *Red Bird* seems to be a species of the Carafow, and the disagreement no more than what may arise from the different places where they are bred, or such difference as is common among many fowls of the same kind, both wild and tame. Upon the head of this bird, there appears a very beautiful crest, the outermost edges of which, are black; the under part, nearer to the head, and part of the neck, are of a lead colour; the rest of the body, a very fine red, only the wings and tail something darker than the other parts. The legs and feet black.

Her late Majesty Queen Caroline, when Princess of Wales, had one of them kept at Richmond amongst her collection of rarities, where the name seems to have been imposed upon it, on account of its colour, or rather for want of knowing its real one.

THE GAULDING.

THERE are several varieties of this species, the most remarkable of which is the Large White Gaulding, which measures from the end of the bill to that of the tail, about three foot and a half, and about four foot from the extension of each wing; the bill is very long, angular, and of a yellow colour, in which there are two long flits for nostrils. The neck is very crooked, resembling in some degree a Roman S, and is about eleven inches long. The feathers that cover the whole body, are of an exceeding beautiful milk white colour. The thighs, legs, and toes, are about ten inches long, and are covered with large scales, of a bluish black colour. It has four toes, one behind, and three before, the middlemost of which is near three inches long; the claws are black; and there is a small web between the two outermost toes.

It

It feeds upon small fish, and frequents the sea marshes and salt pools.

Capt. Wood observes, that in the North West parts of Greenland, there is a sort of fowls which the natives catch with springs and snares, chiefly for the sake of the skin and feathers, which being thick, they dress and make garments of them, like furs, wearing the feathers outward in the summer time, and inward in the winter. He says two or three of his men killed 1500 of them in one day.

One would from this account imagine, snares would be as unnecessary here as in the bird island in America, mentioned by the Earl of Cumberland, who says, there are such incredible numbers of birds found in it, that there needs no artifice to take them; for a man may catch with his hands alone, almost enough to serve a whole fleet.

The *Blue Gaulding* is from its bill to the end of the tail, about eighteen or twenty inches, and from the extension of each wing, about a yard. The part of the bill towards the head is of a bluish colour, and black towards the extremity; it is very sharp, and about two inches and a half long; it has a greenish skin about the eyes, and a tuft of thin

small longish feathers upon the head ; the neck is about six inches long, covered with thin feathers of a bluish black colour ; the whole body of the bird being nearly the same colour, except the breast, belly, and under the wings, which appear something lighter.

The legs are covered with greenish scales, and are about seven or eight inches long ; it has four toes, one behind and three before, the middlemost of which is about two inches long ; and it has black crooked sharp claws.

They feed on shrimps, young crabs, spiders, and field crickets ; and frequent ponds and watery places.

THE OTIS, OR TARDA.

THIS bird is of the size of a large cock, has only three claws on a foot, an oblong head, full eyes, a sharp bill, a bony tongue, and a slender neck. Bellonius and Gesner describe it as much larger and stronger, and as weighing sometimes thirteen pounds and an half. The head, which is but indifferently shaped, is of an ash colour, as is likewise the neck down to the breast. It has a strong bill, and a serrated or saw-like tongue, sharp on both sides, and hard towards the end; with so wide an ear, or auditory duct, that the end of a finger may be introduced. And upon examining under the feathers, two cavities will appear, one towards the bill, and the other leading directly to the brain. It has a plump round breast, is covered with white feathers on the belly, and to the middle of the thighs, and has a great many dark brown and blackish spots on the back. The larger feathers in the wings are
white

white, but black towards the end, and at the roots red. Those of the tail are of a dark red, and adorned with a great many fine streaks and black spots on the outside, and on the inside with red. The legs are about a foot in length, pretty thick and scaly.

This seems to be a sort of bustard, such as are found upon the hills, and in the woods in the northern parts of Germany. The flesh is said to resemble that of the pheasant, and was so acceptable to the emperor Caligula, that, as Suetonius relates, he would have had it offered in sacrifice in his temple.

THE BRASILIAN NIGHT BIRD.

THIS bird is variously described as to size; some contending they are seldom larger than a fowl, while others maintain they are bigger than a goose; the probability is, that there are some not only of both, but also of the intermediate sizes. It is an ill-favoured bird; the head much resembles that of a cat; it has a crooked bill, the upper mandible hanging a good way over the under, the eyes are large and sprightly shining like crystal, the inner circle appears of a whitish yellow; it has two large tufts of feathers, near two fingers long, upon the head, resembling ears; the tail is so short, that it is not seen when the wings, which are very long, are closed.

The thighs and legs are covered with short down, or feathers, as low as the feet, which are armed with strong crooked claws, near
three

three inches long, and very sharp. The feathers of the whole body are of a gold colour, sprinkled up and down with black and white spots.

THE BLUE AND SOLITARY THRUSHES.

THESE are two very curious species, perfectly resembling each other in habits and in manners. Their plumage is in general blue, though the latter has a cast of brown. It is not uncommon in France and Italy, where it chuses the most frightful precipices for its residence, whence it probably receives its name. As it is rarely caught, it is in high estimation even in the countries where it breeds, but still more valuable when carried from home. It not only whistles in the most delightful manner, but speaks with an articulate distinct voice. It is so docile, and observes all things with such diligence, that, though waked at midnight by any of the family, it will speak and whistle at the word of command.

THE BENGAL QUAIL.

THIS is a beautiful bird, and larger than the European quail; it has a dark brown bill; the top part of the head is covered with black, like a cap, under which there runs a large yellow streak, which is continued from the root of the bill to the back part of the head; the eye is encompassed with a large black line, which reaches from the corner of the mouth to the other side of the head, under which there runs a white streak, or line. The under parts of the body are of a yellowish or buff colour, except that part next the tail, which is spotted with red. The hinder part of the neck and back, with the covert feathers of the wings, are of a yellowish green, except a large division of a pale bluish green, upon the pinion of the wings, and another pretty much the same upon the rump; the legs and feet are a sort of orange colour, the claws of a dark red.

M. Misson, in his voyage to Italy, observes, that vast quantities come into those parts every spring from the African shore; and that they are so tired with their long voyage, that they will settle upon the ships they first light on, from whence they are taken with very little trouble. It is surprising how a bird that has no very strong wing, should be able to continue so long a flight. Josephus says the Arabian Gulph breeds more quails than any other place. Varro and others remark, that such large numbers have in the spring time lighted upon ships at sea, in their passage from one climate to another, as to sink the ships; and that an hundred thousand of quails and swallows together, have been taken in a day. And Diodorus Siculus gives much the same account of taking them at Rhinoculara, on the edge of the wilderness where the children of Israel were fed.

Beauplan, in his description of Ukraine, in Tartary, says there are a sort of quails in those parts, with blue feet, which are present death to any that eat of them.

THE HOOPOE,

IN shape of the body, the cock resembles that of the Plover, but the hen is much less, and more slender. The head is adorned with a double row of feathers, reaching all along the top of it, from the bill near to the nape of the neck, which forms a beautiful crest about two inches high, and is made up of twenty-four feathers of different lengths, which it can raise or let fall at pleasure; the tips of which are black; under the black, white, and of a fine chefnut, inclining to yellow, on the remaining part under the white; the neck is of a pale redish yellow, and the breast white, with some few black strokes tending downwards; the back and wings are variegated with black and white cross lines or bars. It has a black sharp bill, about two inches and a quarter long, bending downwards. It is said to weigh about ten or

twelve ounces, and is, from the tip of the bill to the end of the tail, twelve inches, or upwards, and about eighteen inches in breadth when the wings are extended.

They are very rarely seen in England, but are very common in High Germany, especially about Cologne, where they are distinguished by the name of Widehuppe, and generally sit upon the ground, but sometimes upon the willow trees; they feed upon beetles and various other insects, much like the common Woodpecker.

THE RED LEGGED HORSEMAN,

IS a singular and uncommon bird ; it is supposed to be a native of the Low Countries ; very few of them have been seen in England, and those few in the eastern parts of Essex, where they acquired their name, which cannot, however, be justly applied on account of the colour of their legs, for although those of the cock are of a pale red, those of the hen are green. The top of the head and the neck are of a fine light brown, the bill is slender, and near two inches long, of a redish colour at the base, and black at the point. The covert-feathers in the middle of the wings black, but downwards, within two inches of the end of the tail, they are of a brown colour, edged with white. The legs are pretty long, the claws small, and black. They are said to be about sixteen or eighteen inches from the point of the bill to the end of the claws ; and in breadth, when the wings are fully expanded, two foot. In weight, about half a pound.

THE EAST INDIA MARTIN.

IS about the size of a common magpie, of a black colour, with a yellow bill, and a large yellow tuft upon the head; the middle part of the wings is white; the feet are yellow, with large crooked claws. The Javanese are great admirers of this bird, and frequently teach them to whistle and to talk, which they do as distinctly as a man, but with somewhat a rougher voice. There is another sort of them that is of a smaller size.

They are found all over the Indies, and feed upon rice, and other fruits of the earth.

THE POKKOE.

IS a Guinea bird, as ugly as rare, exactly the size of a goose, its wings extraordinary long and broad, made up of dark coloured feathers; the under part of its body covered with ash coloured feathers, or rather hairs, for they are as like the one as the other; having under his neck a maw or bag about a span long, as thick as a man's arm, like a red skin, in which it lays up its food, as the monkeys do in their pouches; the neck, which is pretty long, and the red knob on the nape is garnished with the same sort of feathers or hairs as the under part of the body, in proportion to which the head is much too large, and excepting a very few hairs, it is very bald; the eyes are large and black, the bill extraordinary long and thick.

This creature feeds commonly on fish, which when tossed it catches very nimbly, and swallows down whole into its crop, or maw; and will

will at once devour as much fish as would serve four men; it is likewise a lover of rats, and will swallow them whole.

When a boy or dog is set on them they will make a good defence, pecking and striking them with their bills very smartly, which makes a noise as if two sticks were striking one upon another.

THE BEE-EATER,

IN the shape of its body very much resembles the king-fisher, and is about the size of a common black-bird; the bill is large, and near two inches long, but bends downward, and is a good deal more arched than the king-fisher's; the tongue is slender, but appears rough towards the end, and jagged, as if it were torn. The eyes are, in some, hazle; in others, of a beautiful red colour.

It has a large oblong head, the feathers at the base of the upper chap, are white, shaded with

with a sort of green and yellow colours; the back part of the head of some is of a deep red; in others, there is a mixture of green amongst it; from the corners of the bill, along each side of the head, there is a black stroke extends itself beyond the eyes; contiguous to which, on the under part of the head, the feathers are of a pale yellow; the belly, neck, and breast, are of a bluish green; the scapular feathers in some are blue; in others green, with a mixture of red. The large wing-feathers are of a sort of orange colour, with black tips, intermixed with some few green ones; the rest of the wing-feathers are in some birds more red, in others, more blue. The tail is upwards of three inches long, and consists of about twelve feathers; the two middlemost of which are considerably longer than the rest, and end in sharp points; the colour of the tail varies; in some it is green, in others blue; the under side of a dark brown.

The legs and feet very nearly resemble those of the king-fisher, the toes being joined much in the same manner; they are generally of a blackish colour, sometimes of a sort of brown or dusky red; the claws black.

Bellonius says it is common in the island of Crete, and sometimes is seen in some parts of Italy, but is unknown upon the continent of Greece. It feeds not only on bees, but upon cicada, beetles, grasshoppers, and other insects, and also on the seed of nipplewort, bastard parsley, turnips, &c. They fly in flocks, and frequent the mountains that bear wild thyme.

Aristotle says they build in hollow places or caverns three or four cubits deep, and lay six or seven eggs.

The *Bengal Bee-eater* is about the size of the former, and has a black bill, thick at the base, bending downwards, near two inches long, the eyes a fine red; a black stroke is extended on each side of the head, which begins at the corners of the mouth, and passes beyond the eyes. The base of the upper chape, and under the chin, is covered with bright pale blue feathers; the upper, and back part of the head, of a dusky yellow; the back and wings of the same colour, only shaded pretty strongly with a green; the tips of the quill-feathers brown; the breast and belly green; the thighs and under part near the vent, of a pale yellow, with a small green mixture. The tail consists of the
same

same number of feathers as the former; the outermost, on each side, are of a green and yellow mixture, about three inches in length; the two middlemost twice that length, ending in sharp points, of a brown or dusky colour; the legs and feet black, much like the former.

THE WRY-NECK.

IS nearly the size of a common lark, has a short lead-coloured bill, something less triangular than the rest of the birds of this kind, and has a round tongue, which ends in a sharp bony substance, and pointed like a thorn, with which it generally strikes the ants that are its food, which, by the glutinous matter it contains, and the bird contracting its tongue, it swallows without ever touching them with its bill.

Its plumage, in general, is very elegant and curiously coloured; the upper part of the body being variegated with a great many colours,

and a beautiful sharp line that runs from the crown of the head along the middle of the back. As a means of distinguishing the cock from the hen, Mr. Derham has been so curious as to observe, that the black line upon the cock runs no farther than the upper part of the neck, but that of the hen, he says, reaches almost to the very bill ; also, that the cock's belly is naked, as is the hen's when she sits ; from whence he concludes, it takes its turn in incubation. The lower part of the belly and the throat are yellowish, with some black transverse lines ; the prime feathers of the wings are spotted with large white spots ; the rump of an ash colour. The tail is about two inches long, crossed at distant intervals with black, and sprinkled with little dark coloured specks, but does not bend inwards, as those of other woodpeckers. The legs and feet are short, and the claws disposed in the same manner as other birds of this kind.

There is something ridiculously odd in its gesture, it frequently turning its head quite back to its shoulders ; from whence the ancients have given it the name of *Torquilla*. The body of the hen is of a paler, or more cinerous colour than the cock.

THE KOKOI.

Is a Brazilian bird of the crane kind; and is a very pleasing bird to the sight, about the size of a stork; their bills are straight and sharp, about six fingers in length, of a yellowish colour, inclining to green; the neck is fifteen fingers long, the body ten, the tail five; the neck and throat are white; both sides of the head black, mixed with ash-colour. On the undermost part of the neck are most delicate white, long, and thin feathers, fit for plumes; the wings and tail are of an ash colour, mixed with some white feathers; all along the back, are long and light feathers like those on the neck, but of an ash colour; the legs are very long, and covered above half way down with feathers. Their flesh is very good, and of a grateful taste.

THE VULTURINE EAGLE, AND OTHERS OF THE
EAGLE KIND.

THE *Vulturine Eagle* is nearly the size of the common eagle, and is bald on the top of the head and neck, except some parts that are covered with a sort of whitish down; the bill is black, and straight, for near half way, the other part, especially towards the point, bends downwards into a remarkable hook, a good deal resembling that of the common vulture. The under part of the bill, and sides of the face, about the eyes, are covered over with a dusky coloured down. The pupil of the eye is black, and the irides yellow. The belly and breast are of a palish cream colour, spotted with dusky oblong spots; the covert feathers of the wings and the back are of a redish brown; the quill-feathers and the tail are black; the legs and the upper part of the feet are lead colour, the under-side brown; the talons are black, large, and hooked.

Mr.

Mr. Clayton, in his account of Virginia, printed in the Philosophical Transactions, says they have there three sorts of eagles, the largest is what they call the grey eagle, being much of the colour of our kite, or gledge; the second is the bald eagle, for the body and part of the neck and head are covered with a white sort of down, whereby it looks very bald, whence it derives the name; the third is the black eagle, resembling most of all the English eagle; they generally build their nests on the top of some tall old tree, stripped of its boughs, and near a river side, and the people usually fell the tree when they take the young. When this eagle observes that the fishing-hawk hath struck a fish, he takes wing immediately, and it is sometimes very pleasant to see the flight; for when the fishing-hawk perceives himself pursued, he screams and makes a terrible noise, till at length he drops the fish to make his escape, which the eagle frequently catches before it reaches the earth or water. These eagles kill young lambs, pigs, &c.

Martin in his description of some of the Western Isles of Scotland, says the natives there observe, that the eagle in destroying the deer, fixes his talons between their horns; and beating its wings constantly about their eyes, while

while several other eagles flying at the same time on both sides, force the deer, upon a continual run, till it at last falls into some pit, or down a precipice, where its destroyed, and becomes a more easy prey to its enemies.

The *Offsfrage*. The head of this bird is wholly white, the whole body is like the Vultures, with long wings, and a long tail. Aldrovandus mentions two sorts of this bird, the first of these is larger than the other, the head whitish the beak crooked like the hawks, the top part of which next the head is white, the rest black; the circle round the eyes is white, the ball black. The colour of the whole body is a dark chesnut, inclining to blackish. He is found in the woods and mountains of Syria and Egypt.

Its food is chiefly dead carcases of other fowls and reptiles.

It is said by the antients, that this bird is impatient of cold, the body being of a hot nature by eating of flesh.

A modern author takes it to be of the eagle kind, a bird of prey, and the same mentioned by Moses.

The *Tunis* or *Barbary Falcon* is a sprightly majestic bird, and has a large black bill, with
open

open yellow nostrils; the eyes are of a sort of blackish brown, or dark hazle colour, with small circles of yellow round them. The top of the head is of a pale ash colour, beautifully spotted with black; the back and scapular feathers, and some of the covert feathers of the wings, are pretty much of the same colour; the back having some fine black spots intermixed, much like those on the top of the head. The breast, belly, and thighs, are more of a yellowish colour, inclining to white; the upper part of the breast, pretty much shaded with a blue. There's a large spot or two of white on the second row of the covert feathers of the wings. The wings are very long, reaching, when closed, almost to the end of the tail. The tail is of a bluish colour, with six or seven dusky coloured rings running across it. Some part of the thighs, and under part of the belly, are spotted with curious long black spots, resembling ermine. The legs and the feet are yellow, and the claws or talons black.

THE BOATBILL

IS a very curious bird, and is found in the southern parts of America, of which it is a native; it is about the size of a common fowl. The general colour of the bill is dusky, and the skin beneath the under jaw is capable of distention. From behind the head springs a long black crest. The plumage on the forehead is white, and the rest of the bird is a pale blueish ash colour; and the feathers which hang over the breast, are loose, like those of the heron. There are varieties of this bird, both spotted and brown, but they appear simple varieties, and not at all entitled to the denomination of species. Like the king's-fisher it preys upon fish, which it catches by perching on trees that over-hang the streams, and dropping on the fish as they swim by.

THE UMBRE

IS brought from the Cape of Good Hope, it is the size of a crow, and not much differing in colour, as it is of a deep brown, or umbre. The bill is three inches and a half in length with a furrow on each side the upper mandible, and from the head springs a large crest of black feathers, better than four inches in length.

THE JACANA

IS found in most of the tropical climates, but is most common in South America. It is remarkable for the length of its toes, and for the wings being armed in front with sharp spurs. There are about ten species differing in size from that of a common fowl to that of a water-rail. They vary also in their plumage, some being

brown, some black, and some variable. The *faithful jacana* is a most useful bird at Carthage in South America. The natives, who keep poultry in great numbers, have one of these tame, who attends the flock as a shepherd, to defend them from birds of prey. Though not larger than a dunghill cock, the jacana is able, by means of the spurs on his wings, to keep off birds as large as the carrion vulture, and even that bird himself; and it never deserts its charge, but assiduously takes care to bring the whole flock safe home at night. It feeds on vegetables, and cannot run but by the help of its wings.

THE SHEATHBILL

IS an inhabitant of New Zealand, and is remarkable for a horny sheath which covers the upper part of its bill, which is also moveable, and may be raised upwards or laid flat on the bill. We know of but one species, which is as large as a pigeon, and as white as snow. They feed on shell fish and carrion.

THE CRAKE

IS a bird well known in many parts of Great Britain, but it is still more common in Ireland. In shape it much resembles the water-rail, and was once erroneously supposed to be the same bird, differing only by a change of colour at a certain

certain season of the year. The bill, however, in this species is short and thick, exactly resembling in shape that of the common gallinule, or water-hen, from which it however differs, not only in its plumage, which is a redish brown, but in its habits, as it never frequents watery places, but is always found in grass, corn, or furze. With us it is a bird of passage, and on its first arrival about April, is very lean, not weighing more than six ounces; but before its departure it weighs more than eight. The flesh is good food.

THE HORNBILL.

THIS is a race of birds, consisting, as it has been stated by some nomenclators, of eleven species; it is nearly allied to the toucan, and indeed seems to hold the same place in the warm climates of the old continent, as the toucan does in the new. The distinguishing characteristic of this genus is an immense bending bill, with frequently

frequently a large protuberance in the upper part of it resembling an additional bill.

The *Rhinoceros Hornbill*, or *Rhinoceros bird*, is nearly as large as a turkey; the bill is ten inches long, and two and a half thick at the base. On the upper part is an appendage as large as the bill itself, and turning upwards, which measures eight inches in height. There is nothing else remarkable in the bird, as the general colour of the plumage is black. This bird is found in most parts of the East Indies, where, like the raven, it feeds upon carrion.

The *Helmet Hornbill* is remarkable for having the same prominence of a conical form; and in the Phillipine isles there is a species the horn of which reaches backwards beyond the eyes, ending in two angular points, which produce the effect of a bird with two horns.

The *Pied Hornbill* of Malabar is distinguished from the rest of its kind by the breast, belly, and part of the wings being white, the remainder of the body is, like the rest of these animals, black.

THE CHATTERERS.

THESE, though so little of their habits are known, form a very beautiful race of birds, including about ten species. That which is called the *Waxen* or *Bohemian Chatterer* is the size of a large lark, eight inches. Its head is adorned with a beautiful pointed crest. The upper parts of the body are of a redish ash colour; the breast and belly of a pale purplish chestnut; a black streak passes over each eye; the chin also and quills are black. Their native country is Bohemia, whence they wander in flocks all over Europe, and were formerly superstitiously considered as a presage of a pestilence. They are seldom seen in the south parts of Britain.

The *Carunculated Chatterer* is a native of Cayenne and Brasil. It is about twelve inches long. The plumage of the male is of a pure white, except a tinge of yellow on the rump, quills,

quills, and tail. The female has the upper parts of the plumage olive grey, and the lower parts grey, edged with olive. Both have a fleshy caruncle at the base of the bill, which projects over it like that of a turkey-cock. Their voice, as is that of all the kind, is soloud and noisy, that they may be heard at the distance of half a league.

THE GACKLE.

OF this kind there are about eleven species inhabiting America and the tropical climates, some of them the size of a magpie, others about that of a blackbird. Their general plumage is black. They live on maize, fruits and insects; but one species in the Phillipine islands, which is called from its beauty, the *Paradise Grackle*, is remarkable for its being an extraordinary destroyer of grasshoppers. It stands upon record, that the inhabitants of the isle of Bourbon,

being greatly infested with that insect, imported a pair of these birds, which presently relieved them from that pest. In process of time however the grackles became very numerous, and the inhabitants thinking them injurious, proscribed them by an edict, on which the grasshoppers increased so fast upon them, that they were obliged to send for more, which presently dispatched every grasshopper on the island.

The *Boat-tailed Grackle* is a native of Jamaica. Its plumage is black, and it is remarkable for the feathers of its tail forming a hollow like a boat on the upper surface, so that it may be compared to a hen's tale with the underside turned uppermost. This bird is the size of a cuckoo.

THE FLYCATCHERS,

ARE with us summer birds only, and take their name from feeding upon insects. The *Spotted Flycatcher*, however, eats fruit, and is, on that account, called in Kent, the cherry-sucker. It is, in general, of a mouse-colour, the head spotted with black, and the wings and tail edged with white. The *pied flycatcher* is less than a hedge-sparrow, and is known by a white spot on the forehead.

The *fantailed flycatcher* is a native of New Zealand. It is about the size of the bearded tit-mouse, may be easily tamed, and will sit on any person's shoulder to pick off the flies. The whole head is black, with a white collar; the upper parts of the body olive brown; the under parts yellowish nut colour, and the tail white, except the two middle feathers, which are black.

THE TROPIC BIRD.

THIS includes only three known species, which are all distinguished by a wedge-like tail, the two middle feathers extending a vast length beyond the others.

The *Common Tropic Bird* is about the size of a wigeon. The length to the tip of the two long feathers is nearly three feet. The bill is three inches long, and red. The head, neck, and under parts of the body are quite white. The upper parts of the plumage white also, but marked with black lines. The two middle feathers of the tail measure twenty inches, and project fifteen inches beyond the rest. It takes its name from being chiefly found within the tropics. It frequently flies very high, but generally attends upon the flying fish in their escape from their watery enemies; and they have now and then been found in calm weather supinely floating on the backs of the drowsy tortoises.

tortoises. Their flesh is not good, but is sometimes eaten by the hungry sailors.

On the Palmerston island there is a black billed tropic bird; and at Mauritius there is a tropic bird with a bill and tail of a beautiful rose colour.

THE DARTER.

ALL the birds of this kind are distinguished by a peculiar long and slender neck.

The *white-bellied Darter* is scarcely so large as a mallard, but its neck is so long that it measures not less than two feet ten inches. The bill is three inches long, straight and pointed. The neck is covered with downy soft feathers, of a redish grey; the upper parts of the plumage are dusky black, dashed with white; the under parts pure silvery white. It is a native of Brasil, and is extremely expert at catching fish.

The

The *black bellied Darter* is the size of the common duck. The head, neck, and breast, are light brown. The back, scapulars, &c. marked with stripes of black and white. The quill-feathers, belly, thighs, and tail, are deep black. The four toes are united like those of the cormorant. In the islands of Ceylon and Java it sits on the shrubs that hang over the water, and in a country where people are so apprehensive of serpents, it often terrifies the passenger, by darting out its long and slender neck, which in their surprise they mistake for the attack of some fatal reptile.

OF FISH.

THE PHYSIOLOGY AND STRUCTURE OF FISH.

MATHEMATICIANS have computed that the surface of the terrestrial globe contains one hundred and ninety-nine millions and a half of square miles; that the sea is in proportion to the land as 155,5 to 55; consequently that it occupies nearly three fourths of the whole surface, or, in round numbers, one hundred and forty nine millions of miles.

This immense and almost unknown space, contains myriads of creatures, to whose very form we are almost strangers, and of whose dispositions and manners we are still more ignorant. Curiosity has indeed drawn some, and necessity more from the bosom of their retreat, and shewn us that they differ essentially from every other part of animated nature; but of their peculiarities our information is equally limited and inaccurate.

An

An extraordinary degree of divine wisdom is observable in the structure of fish, and in their conformation to the element in which they are to live. Most of them have the same external form, sharp at each end, and swelling in the middle, by which configuration they are enabled to traverse the watery element with greater ease and swiftness. From their shape men have taken the idea of those vessels which are intended to sail with the greatest speed; but the progress of the swiftest sailing ship, with the advantage of a favourable wind, is far inferior to that of fish:—Ten or twelve miles an hour is no small degree of rapidity in the sailing of a ship; yet any of the larger species of the watery tribe would soon overtake her, play round as if she did not move, and even advance considerably before her.

As the progression of fish is performed in a different way from that of fowls or quadrupeds, they require neither anterior nor posterior extremities, but are provided with machines, consisting of a number of elastic beams, connected by firm membranes, and with a tail of the same texture. Their tails are so framed as to contract to a narrow space when drawn together

ther to either side, and to expand when drawn to a strait line with their bodies:—thus by the assistance of this broad tail, and the fins on their sides, they make their progression much in the same way as a boat with oars on its sides, and a rudder at its stem.

The *FINS* of fish are denominated from their situations.

The *pectoral* are placed at a little distance behind the opening of the gills, and are large and strong, and serve as well to balance the body as to assist the motion of the fish.

The *ventral* are placed towards the lower part of the body, under the belly, and serve chiefly to raise or depress the fish in the water,

The *dorsal* is situate on the ridge of the back, and is very large in flat fish: its use, like the pectoral ones, is to keep the body in equilibrio, as well as contribute to its progressive motion.

The *anal* fin is placed between the vent and the tail, enabling the fish to keep an upright position.

The *FINS* in some are much more numerous than in others;—a fish completely fitted for swimming with rapidity is generally furnished

with two pair on the sides, and three single ones, two above and one below; yet it does not always happen, that the fish which has the greatest number of fins is the swiftest swimmer. The shark is thought to be one of the swiftest, and yet has no fins on his belly, while the haddock seems more completely fitted for motion, and yet does not move so quickly.

The chief use of the fins seems indeed for the purpose of keeping the body *in equilibrio*:— if the fins are cut off, the fish can still swim, but will turn upon its sides or its back, without being able to keep itself in an erect posture as before. When the fish is in a state of repose, it spreads all its fins, and seems to rest upon the *pectoral* ones, or those near the gills, and the *ventral*, or belly fins, near the bottom; it has the power of folding up its *pectoral* fins, and by that means inclining to the side on which the fin is folded. To produce a retrograde motion, the *pectoral* fins are struck in a contrary direction. If the creature desires to turn, a blow from the tail sends it about in an instant; but if the tail strikes both ways, then the motion is progressive. And it is observable, that some fish that have no fins at all, such as lobsters, dart forward with prodigious rapidity by means of

of their tail, which is now found to be the instrument of progressive motion in all the aquatic species; and when the tail is cut off, the fish loses all motion, and gives itself up entirely to the impulse of the water.

Fish are also, in general, furnished with a slimy glutinous matter, which defends their bodies from the immediate contact of the surrounding fluid, and which, likewise, in all probability, assists their motion through the water. Beneath this, in many kinds, is found a strong covering of scales, that like a coat of mail, defends it yet more powerfully; and under that, before we come to the muscular parts of the body lies an oily substance, which also tends to preserve the requisite warmth and vigour. The scales of this cuticle are laid on one another like tiles on a building, and the use whereof is analogous to the hair, wool, feathers, &c. of other animals; and below which may be discovered their proper *cuticula* and *cutis*.

Though fish are formed for living entirely in the water, yet they cannot subsist without air. On this subject Mr. *Hawksbee* made several experiments, which are recorded in the philosophical transactions. The fish he

employed were gudgeons; a species that are very lively in the water, and can live a considerable time out of it. Three of them were put into a glass vessel, with about three pints of fresh water, which was designed as a standard to compare the others by. Into another glass, to a like quantity of water, were put three more gudgeons, and thus the water filled the glass to the very brim. Upon this he screwed down a brass plate with a leather below to prevent any communication between the water and the external air, and, that it might the better resemble a pond frozen over, he suffered as little air as possible to remain on the surface of the water. A third glass had the same quantity of water put in it, which, first by boiling, and then by continuing it a whole night in *vacuo*, was purged of its air as well as possible; and into this also were put three gudgeons. In about half an hour, the fish in the water from whence the air had been exhausted, began to discover some signs of uneasiness, by a more than ordinary motion in their mouths and gills. Those that had no communication with the external air, would at this time also frequently ascend to the top, and suddenly swim down again: and in this state they continued for a considerable

considerable time, without any sensible alteration. About five hours after this observation, the fish in the exhausted water were not so active as before, upon shaking the glass which contained them. In three hours more, the included fish lay all at the bottom of the glass with their bellies upwards; nor could they be made to shake their fins or tail by any motion given to the glass. They had a motion with their mouths, however, which shewed that they were not perfectly dead. On uncovering the vessel which contained them, they revived in two or three hours, and were perfectly well next morning; at which time those in the exhausted water were also recovered. The vessel containing these last being put under the receiver of an air-pump, and the air exhausted, they all instantly died. They continued at top, while the air remained exhausted, but sunk to the bottom on the admission of the atmosphere.

The *gills* of fish are generally supposed to be assigned for an operation somewhat similar to that of the lungs in other animals; their motion is very analogous to our breathing; yet the use of air to these creatures is difficult to be assigned; and the means of obtaining what they want is not easily to be accounted for,

for, or rendered intelligible. The following is however the general explanation of this phenomenon.

The fish first take a quantity of water into their mouth, which is driven into the gills; these close and keep the water which is swallowed from returning by the mouth, while the bony covering of the gills prevents it from going through them, until the animal has drawn the proper quantity of air from it; then the bony covers open, and give it a free passage, by which means also the gills are again opened, and admit a fresh quantity of water. If the fish is prevented from the free play of its gills, it soon falls into convulsions, and dies.

This appears a pretty plausible explanation of the respiration of fish; yet it still remains a difficulty not easy to be solved, what is done with this air? There seems to be no receptacle for containing it, except the air-bladder, or swim, which many modern philosophers are of opinion is only to enable the fish to rise or sink at pleasure, and not destined to answer any vital purpose.

The air-bladder is a vesicle found in the bodies of all spinous, or bony fish; though not in those of the cartilaginous or cetaceous kind,
situated

situated towards the back of the fish, opening to the maw or gullet, and composed of one, two, or three divisions. It is thought that the animal possesses a power of distending or contracting this bladder, and of consequence becoming specifically lighter or heavier than the fluid in which it swims, and thence to rise to the top, or sink to the bottom of the water at pleasure; and that such is its use, seems deducible from the following experiment:

A carp being placed in an air-pump, and the air exhausted, the fish soon swelled to such a degree that his eyes started from his head, and the bladder burst by its expansion. The carp continued to live on being thrown into water, but was unable afterwards to rise to the top. The same circumstances are consequent upon any prick or wound of the bladder by which the air may escape; for in such cases the fish continues to crawl at the bottom. And such animals as river cray-fish, oysters, lobsters, crabs, &c. that never quit the bottom of the water, are found destitute of any air-bladder.

On the other hand; that this vesicle does not merely serve for the purpose of varying the specific gravity of fish, but for some purposes essentially necessary to life, is an opinion generally

rally entertained by the ancient philosophers. Dr. Priestley also conjectures that it may serve some other intentions in the animal economy, besides that of the raising or depressing of the fish.

Among the many arguments on this side of the question, the most conclusive is, that all the cartilaginous kind of fish want air-bladders, and yet they rise to the top, or sink to the bottom without any difficulty; and also, that though most of the eel-kind have air-bladders, yet they cannot raise themselves in the water without great difficulty.

On this subject of the *air*, or *swimming-bladder*, Dr. Monro has stated some interesting facts:—It has long been known, says he, that in the flat fish there is no swimming-bladder; and in a few long-shaped fish, as in the mackerel, he has also found it wanting. It is likewise known, that in many fish the air bag communicates by a duct with the oesophagus. On examining this matter, he found in a sturgeon a round hole, nearly an inch in diameter in the upper and back part of the stomach, by which it communicates with a very large air-bag.

In the salmon, he found a hole so large as to admit readily the largest size goose-quill, leading directly through the coats of the oesophagus

gus into the air-bag; and if, as in the carp, there are two air-bags, the duct leads to the posterior bag, from which there is a passage into the anterior. From these circumstances he concludes, that the air found in the swimming bladder, passes into it through the above-mentioned ducts; and they seem well suited for this purpose; for as in the common horizontal situation of the fish, their beginning is at the upper part of the stomach, it is easy to conceive that the air which they take in at their mouth, when they ascend, or that which may by some more latent process be disengaged from the water, is applied to the ducts; and that the fish, by an instinct of nature, distinguishes the irritation of air from that of water, and propels the air into the air-bag, but excludes the water.

But in the cod and haddock, though the air-bag is very large, and its sides remarkably strong, yet the Doctor was not able to discover any communication of it with the mouth, oesophagus, stomach, or intestines. The air-bag was not enlarged by blowing into the alimentary canal, nor could it be emptied without bursting it.

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Further, on the inner side of the air-bag of the cod, haddock, &c. was found a red coloured organ, the surface of which is very extensive, composed of a vast number of leaves or membranes doubled; but in those fish where the air-bag communicates with the alimentary canal, this red body is either very small and simple in its structure, as in the conger eel, or entirely wanting, as in the sturgeon, salmon, carp, &c. Hence, he thinks it reasonable to suppose, that the air may be secreted from this red body, somewhat in the same way it seems to be secreted into the swimming bladders of aquatic plants, or perhaps into the air-bag of the egg of a bird as the chick grows. Though perhaps many readers will rather be of opinion, that the cod, haddock, &c. has an air-duct which has as yet escaped observation.

But what is the use of the red body? does it, like the gills, receive somewhat useful, or discharge somewhat hurtful to the animal? or, are we to suppose that the air-bag not only serves to render the body of the fish specifically lighter, but also that the air received into it is of benefit to the constitution, by adding somewhat useful, or taking away somewhat noxious?

In

In all the fish which fell under the dissection of Dr. Monro, he found the heart to consist of but one auricle and one ventricle; and that from the latter one artery is sent out, which is entirely spent on the gills. That from the gills therefore the returning blood passes to all the other parts of the body, without the intervention of a second auricle, as in man. From his observations and experiments, the Doctor concludes, that the circulation of the blood being carried on the cartilaginous fish in the same manner as in the cetaceous and boney, and the whole mass of blood passing through their gills, they must breathe, or they cannot possess the *pulmo arbitrarius*, which naturalists have assigned to them.

From the circumstance of very large and numerous lymphatics being dispersed upon the gills of the scates, and the additional one that fish soon die when put into water from which the air has been extracted, and yet that such water is capable of washing off exhaled matter from the gills, and of taking up phlogiston readily, Dr. Monro is led to suppose that the gills or lungs not only discharge hurtful matter, but serve also to take in from the air which is mixed with the water *somewhat* necessary for

life, the precise nature of which experiments do not yet enable us to specify.

Many naturalists seem inclined to place the aquatic race of beings in a very inferior scale of importance on the score of animal faculties to either quadrupeds or birds. Their sense of FEELING, say such writers, must be very *obscure*, on account of the scaly coat of mail in which they are wrapped;—but in reply it may be said, that even these scales may be endued with as great or nice a power of sensation as we can imagine: for the sense of feeling is not properly connected with *softness* in any organ, more than with *hardness* in it.

A similar argument may be used with regard to SMELLING;—we know not, indeed, how smells can be propagated in water, yet is that by no means a proof that they are not so:—on the contrary, as water is found to be capable of absorbing putrid effluvia from the air, nothing is more probable than that these putrid effluvia, when mixed with the water may affect the olfactory organs of fish, as well as they affect ours when mixed with the air. But this idea is carried farther by a very eminent naturalist, who asserts that, “The olfactory organ in fish is large, and they have a power of dilating
and

and contracting the passage as occasion requires. It is chiefly by their acute smell that they discover their food ; and their sight appears to be of less use than that sensation in searching for their nourishment. If a fresh worm be thrown into the water, a fish shall distinguish it at a considerable distance ; and that this is not alone by the eye is plain from observing that after the same worm has been a considerable time in the water and lost its smell, no fish will come near it ; but if the worm be now taken out, and a few small incisions made into it, in order to transmit fresh effluvia, the former effect will take place. For it is supposed that had the creatures discovered the bait with their eyes, they would have come equally to it in both cases."

In consequence of smell being the principal means that fish have of discovering their food, we may frequently observe their allowing themselves to be carried down with the stream that they may leisurely re-ascend against the current of the water ; thus the odoriferous particles swimming in that medium being applied more forcible to their olfactory organ, produce a stronger sensation.

The

The capacity of distinguishing TASTES has been also, by the same writers, denied to the objects of this division of animated nature. The *palate* of most fish, they say, is hard and bony, consequently incapable of the powers of relishing different substances; and accordingly the voracious part of these animals have often been observed to swallow the fisherman's plummet instead of the bait. Indeed no voracious animals seem to be endued with much sensibility in this respect, nor would it be probably consistent with that way of promiscuously devouring every creature that comes within its reach, without which they would not be able to subsist; though certainly the other kinds are as well able to distinguish their proper food from what is improper, as other animals.

Of the senses that have *touching* and *taste* for their object, there can be little room for remark; in all fish, however, external openings for *smell* are very evident, generally on each side in the osseous fish, and which on each side of the head lead to a complex organ, the surface of which is of considerable extent, and upon a pair of large or olfactory nerves terminate. In some fish, as the haddock, the olfactory

factory nerve, says Dr. Monro, in its course between the head and nose, passes through a cineritious ball, resembling the cineritious or ashes-like matter connected in our body to the olfactory nerve within the cranium. He therefore infers, that there can be no doubt that they enjoy the sense of *smelling*: but there is great reason to believe, that suited to their surrounding element, they are much more sensible of odorous bodies dissolved in water, and applied by its medium, than we should be, if the application of the object was to be made to our organs of smell by the same medium.

The brain of fish is sensibly smaller in proportion to their bodies than in quadrupeds or birds; yet the nerves it sends off are as large in proportion to the several organs, as in those two classes. In it is found the like principal division into brain and cerebellum; and these are hollow, and have ventricles within them.

The arguments against the SIGHT of fish, are the weakest of all: daily instances occur to shew us that fish have a very acute sight, not only of objects in the water, but also of those in the air: their jumping out of the water to catch flies is an abundant proof of this; and they will continue to do this in a fine summer evening,

evening, even after it is so dark that we cannot distinguish the insects they attempt to catch.

Dr. Monro, whose experiments and observations tend to establish the perfection of sight in fish, remarks that the humours of the eyes of these creatures are proportionally in greater quantity, or much larger than those of animals living in air; the eye of the cod being nearly of the same weight and depth, and its axis of the same length as the eye of the ox.

The primary use of the almost completely spherical figure of the crystalline lens of fish, or great convexity, especially of the anterior part of their lens, which the Doctor found to project in the cod about seven-fortieths of an inch beyond the iris, is to take a large field of the objects around them, which was particularly necessary, as the motion of their neck is inconsiderable.

To enable them with the same length of the axis of the eye as in the quadruped, to collect into a focus on the retina, the rays of lights coming from the dense medium of the water, four chief circumstances concur:

In the first place we observe that their crystalline lens is more convex, or composed of portions of smaller spheres than in land-animals.

In

In the next place we have found that their cryſtalline lens is, in correfponding parts, much more denſe than in animals which live in air.

Thirdly, that the lens in fiſh poſſeſſes power of refracting light far beyond what has been calculated by authors, who have proceeded on the ſuppoſition that powers were proportioned nearly to its ſpecific gravity.

In the laſt place, the vitreous humour of fiſh being lighter than that of land-animals, the rays of light iſſuing from their lens will be refracted in a greater degree, or brought ſooner to a focus.

It has been thought by ſome naturaliſts that fiſh are totally deſtitute of hearing: on the other hand, it is urged, that when kept in a pond, they may be made to anſwer at the call of a whistle, or the ringing of a bell; that they appear terrified, and ſink to the bottom of the water upon any ſudden noiſe, as thunder, or the firing of guns. Moſt of the ancients were of opinion that fiſh had the ſenſe of hearing, though they by no means could aſcertain the auditory paſſage, or determine the matter by experiment. Aristotle, Scaliger, Nierembergius, Geoffrey, and Johnson, are of the ſame
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opinion; and Dr. George Serger, author of a dissertation on this subject in the German Ephemerides, says, that having been to take a walk with some of his friends in the fine gardens of the Archbishop of Saltzburg, the gardener conducted them to a very clear piece of water, of which the bottom was paved with stones of different colours, and in which they did not at first see any fish; but the man had no sooner rung a little bell, than a multitude of trouts came together from all parts of the pond, to take what the gardener had brought them, and disappeared as soon as they had eat it up. The gardener assured his company that he always did the same, whenever he had a mind to give them any thing to eat. Having continued to walk about the garden half an hour longer, and returning to the pond, they had again the pleasure of seeing all the trouts re-assemble at the ringing of the bell.

Geoffrey, in his *Dissertation sur l'Organe de l'Ouïe*, gives a particular description of the organs of hearing belonging to several species: nor can it be thought that water is an improper medium of sound, as daily experience shews us, that sounds may be conveyed not only through water, but through the most solid bodies.

dies. We shall terminate the discussion of this matter by some extracts from the writings of two of the most distinguished anatomists and naturalists of our times, Doctors Monro and Hunter.

Dr. Monro had an opportunity of dissecting one of the cetaceous division, namely the *phocaena*; and after a very nice anatomical investigation, observes, in regard of the hearing of fish, "that while they float upon the surface of the ocean, impression is made on the several parts of their ear in the same manner as in man.

It has been proved by experiment that sounds are conveyed through water almost with the same facility with which they move through air. A bell rung in water returns a tone as distinct as if rung in air. Derham observed that it came a quarter deeper. Naturalists in general had believed that fish had a strong perception of sounds at the bottom of deep rivers; but the anatomical researches of the above gentlemen clearly demonstrate the auricular organ in these animals:—Monro's experiments, made in 1780, to judge of the effect of sounds in water, are curious.

For this purpose, he employed two bells, the sounds of which he was used to; one of them a small tea-table bell, the other much larger and thicker, so that the sound of it could be very well heard at the distance of a quarter of a mile. When these were plunged under water and rung, he observed that the sound of them was very sensibly graver; but still the ringing tremor of both was very distinguishable. On performing an accurate experiment, the tea-table bell was found in air the highest G. of a harpsichord; but in water it sounded a fifth false lower, or it sounded the C sharp under the G.

He next plunged his head under the water while he rung the bell in the air, and heard the sound of it distinctly. As the tone of the bell is louder and more acute in the air than in the water, its sound is necessarily better heard when the head of the person making the experiment is under the water and the bell above it, than when the bell is rung under the water while the head is above it.

The Doctor next plunged his whole body with the bells, holding their handles in his hands, under the water, and then rung them,
and

and was surpris'd with the loudness and distinctness of their sounds, and could readily distinguish their different tones.

In like manner, when plunged under the water, he struck two stones held in his hands against each other, and was surpris'd with the shock communicated to the ears.

This experiment confirms Dr. Franklin's opinion, "That water will convey sound farther and more readily than air. He thinks he has heard a smart stroke of two stones together under water, his ear being also under water in the same river, near a mile: how much farther it may be heard he knows not, but supposes a great deal farther, because the sound did not seem faint, as if at a distance, like distant sounds through the air, but smart and strong, as if present just at the ear."

Our author, afterwards, by means of a string tied to the handle of the largest bell, and to an inflated bladder, suspended that bell in a very deep pool, six feet under the surface of the water, and took hold of a cord twelve yards long, which he had previously tied to the handle. He then plunged under the water and pulled the cord, and found the sound was instantly conveyed to his ears.

He

He, in the last place, thought of trying an experiment; to determine whether air or water conveyed sound quickest; but there being no lake near Edinburgh above 800 feet broad, he found it impossible, independently of the difficulty of constructing a proper apparatus, to perform the experiment in a satisfactory and decisive way. He, however, made the following experiment. He charged three English pint bottles each with about ten ounces of gunpowder. He then inserted a tin tube four feet in length into each bottle, and prevented the water from getting into the bottle by wrapping a piece of wet bladder round the neck of it and the neck of the tube which entered into it, and tying the tube and neck of the bottle to each other. After filling the tube with gunpowder, he fixed to the top of it a piece of match paper; and into the match paper, just over the top of the tube, he put two ounces of gunpowder.

He then sunk the bottle near the side of a lake to the depth of about two feet, and went into the water at the greatest distance possible, which was about 800 feet, and laid himself on his back in the water, with his ears under its surface, and nose and eyes above it. The match
was

was then set fire to by another person ; and as it was midnight, he saw the flash of the gunpowder contained within the match, and soon after heard the noise of the explosion of the gunpowder within the bottle. But he found it impossible in this way to determine the velocity of the sound with accuracy, as the gunpowder in the bottle was not set fire to through the tube so instantaneously as was expected.

For want of being provided with a proper apparatus, the piece of water not being of sufficient extent, and the experiment too seldom repeated, the only conclusion the Professor could draw, was, that after the bottle burst, he heard one, but did not hear two explosions ; so that the water seemed to convey the sound nearly in the same manner as the atmosphere.

The organs of hearing in fish are very minutely described by J. Hunter, F. R. S.—They are, he observes, placed on the sides of the skull, or that cavity which contains the brain ; but the skull itself makes no part of the organ, as it does in the quadruped and the bird. In some fish, this organ is wholly surrounded by the parts composing this cavity, which in many is cartilaginous ; the skeleton of these fish being like those of the ray kind ; in others also, as
in

in cod, falmon, &c. whose skeleton is bone, yet the part is cartilaginous,

In some fish this organ is in part within the cavity of the skull, or that cavity which also contains the brain, as in the falmon, cod, &c. the cavity of the skull projecting laterally, and forming a cavity there.

The organ of hearing in fish appears to grow in size with the animal, for its size is nearly in the same proportion with the size of the animal, which is not the case with the quadruped, &c. the organs being in them nearly as large in the growing foetus as in the adult.

It is much more simple in fish than in all those orders of animals who may be reckoned superior, such as quadrupeds, birds, and amphibious animals, but there is a regular gradation from the first to fish.

It varies in different orders of fish; but in all it consists of three curved tubes, all of which unite with one another: this union forms in some only a canal, as in the cod, falmon, ling, &c. and in others a pretty large cavity, as in the ray kind. In the jack there is an oblong bag, or blind process, which is an addition to those canals, and which communicates with them

them at their union. In the cod, &c. that union of the three tubes stands upon an oval cavity, and in the jack there are two of those cavities: these additional cavities in these fish appear to answer the same purpose with the cavity in the ray or cartilaginous fish, which is the union of the three canals.

The whole is composed of a kind of cartilaginous substance, very hard or firm in some parts, and which in some fish is crufted over with a thin bony lamella, so as not to allow them to collapse: for as the shell does not form any part of these canals or cavities, they must be composed of such substance as is capable of keeping its form.

Each tube describes more than a semicircle. This resembles in some respect what we find in most animals, but differs in the parts being distinct from the skull.

Two of the semicircular canals are similar to one another, may be called a pair, and are placed perpendicularly; the third is not so long; in some it is placed horizontally, uniting as it were the other two at their ends or terminations. In the skate it is something different, being only united in one of the perpendiculars.

The two perpendiculars unite at one part in one cavity, by one arm of each uniting, while the other two arms or horns have no connection with each other, and the arms of the horizontal unite with the other two arms of the perpendicular near the entrance into the common canal or cavity.

Near the union of those canals into the common, they are swelled out into round bags, becoming there much larger.

In the ray kind they all terminate in one cavity, as has been observed; and in the cod they terminate in one canal, which in these fish is placed upon the additional cavity or cavities. In their cavity or cavities there is a bone or bones. In some there are two bones; as the jack has two cavities, we find in one of those cavities two bones, and in the other only one; in the ray there is only a chalky substance. At this union of the two perpendiculars in some fish enters the external communication, or what may be called the external means. This is the case with all the ray kind, the external orifice of which is small, and placed on the upper flat surface of the head; but it is not every genus or species of fish that has the external opening.

The

The nerves of the ear pass outwards from the brain, and appear to terminate at once on the external surface of the swelling of the semicircular tubes above described. They do not appear to pass through those tubes so as to get on the inside, as is supposed to be the case in quadrupeds; I should therefore very much suspect that the lining of those tubes in the quadruped is not nerve, but a kind of internal periosteum.

It may after all be reasonably questioned whether every species of fish be endued with the organs of hearing, especially those which are deprived of eyes, as oysters, muscles, and all testaceous fish with hard shells. For though in some instances they contract and shut themselves up within their cells, this seems to be operated less by hearing than the sentiment of touch, excited by the agitation of the water.

The teeth of fish are not calculated for breaking their food into small morsels, but rather to grasp their prey, and hinder the creatures they have once caught from escaping again; they feed chiefly on smaller fish, or other animals that need no trituration in the mouth, but spontaneously and gradually dissolve into a liquid

chyle; there are also two round bodies in the posterior part of the jaws, which, as well as the basis of the *bronchi*, have a number of tenter-hooks fixed in them in such a manner, as that any thing can easily get down, but is hindered from getting back.

As these creatures have nothing that can be called a *neck*, the *œsophagus*, or gullet, is of course very short, and scarcely distinguished from the stomach; for in fact the food lies equally in both.

The stomach is of an oblong figure; which, in large fish, is commonly found to contain some smaller ones, still retaining their natural form, but when touched melting down into a jelly. From this, and the great quantity of liquors poured into their stomachs, it is concluded that digestion is solely brought about in them by the power of a *menstruum*, and that no trituration happens here. The guts are very short, making only three turnings, the last of which ends in the common cloaca for the feces, urine, and semen, situated about the middle of the inferior part of the body.

Fish are remarkable for their longevity.
“ Most of the disorders incident to mankind
(says Bacon) arise from the changes and alterations

rations in the atmosphere; but fish reside in an element little subject to change; theirs is an uniform existence; their movements are without effort, and their life without labour. Their bones also, which are united by cartilages, admit of indefinite extension; and the different sizes of animals of the same kind; among fish, are very various. They still keep growing; their bodies, instead of suffering the rigidity of age, which is the cause of the natural decay of land-animals, still continue increasing with fresh supplies; and as the body grows, the conduits of life furnish their stores in greater abundance. How long a fish, that seems to have scarce any bounds put to its growth, continues to live, is not ascertained: perhaps, the life of a man would not be sufficient to measure that of the smallest." There have been two methods fallen upon for determining the age of fish; the one is by the circles of the scales; the other is by the transverse section of the back bone. When a fish's scale is examined by a microscope, it is found to consist of a number of circles one within another, in some measure resembling those which appear on the transverse section of a tree, and is supposed to give the same information. For,

as in trees, we can tell their age by the number of their circles; so, in fish, we can tell theirs by the number of circles in every scale, reckoning one ring for every year of the animal's existence. The age of fish that want scales may be known by the other method, namely, by separating the joints of the backbone, and then minutely observing the number of rings which the surface, where it was joined, exhibits.

Fish are, in general, the most voracious animals in nature. In most of them, the maw is placed next the mouth; and, though possessed of no sensible heat, is endowed with a very surprising faculty of digestion. Its digestive power seems, in some measure, to increase in proportion to the quantity of food with which the fish is supplied. A single pike has been known to devour 100 roaches in three days. Whatever is possessed of life seems the most desirable prey for fish. Some that have but very small mouths, feed upon worms, and the spawn of other fish; others, whose mouths are larger, seek large prey; it matters not of what kind, whether of their own species, or any other. Those with the largest mouths pursue almost every thing that hath life; and often
meeting

meeting each other in fierce opposition, the fish with the largest swallow comes off victorious, and devours its antagonist. As a counterbalance to this great voracity, however, fish are incredibly prolific. Some bring forth their young alive, others produce only eggs: the former are rather the least fruitful; yet even those produce in great abundance. The viviparous blenny, for instance, brings forth 200 or 300 at a time. Those which produce eggs, which they are obliged to leave to chance, either on the bottom where the water is shallow, or floating on the surface where it is deeper, are all much more prolific, and seem to proportion their stock to the danger there is of consumption. Lewenhoeck assures us, that the cod spawns above nine millions in a season. The flounder commonly produces about one million, and the mackarel above 500,000. Scarce one in 100 of these eggs, however, brings forth an animal: they are devoured by all the lesser fry that frequent the shores, by water-fowl in shallow waters, and by the larger fish in deep waters. Such a prodigious increase, if permitted to come to maturity, would overstock nature; even the ocean itself would not be able to contain, much less provide for,
one

one half of its inhabitants. But two wise purposes are answered by their amazing increase; it preserves the species in the midst of numberless enemies, and serves to furnish the rest with a sustenance adapted to their nature.

Mr. Thomas Harmer having observed a very great difference in the accounts given by various writers of the fecundity of fish, set himself to ascertain with exactness the number of eggs in a great variety, and communicated the result of his labour to the Royal Society.

He observed the size of the eggs to be nearly the same in great and small fish of the same species; but that the number is in proportion to the animal.

In a Carp	-	-	203,109
In a Cod	-	-	5,686,760
In a Flounder	-	-	1,375,100
In a Herring	-	-	36,960
In a Lobster	-	-	21,699
In a Mackarell	-	-	564,681
In a Perch	-	-	28,323
In a Pickrel	-	-	80,338
In a Prawn	-	-	3,806
In a Roach	-	-	21,586
In a Shrimp	-	-	6,807
In a Smelt	-	-	38,278
In a Soal	-	-	100,000
In a Tench	-	-	383,252

With

With respect to the generation of many kinds of fish, the common opinion is, that the female deposits her spawn or eggs, and that the male afterwards ejects his sperm, or male semen, upon it in the water. The apparent want of the organs of generation in fish gives probability to this; but it is strenuously opposed by Linnæus. He affirms that there can be no possibility of impregnating the eggs of any animal out of its body. To confirm this, the general course of nature, not only in birds, quadrupeds, and insects, but even in the vegetable world, has been called in to his assistance, as proving that all impregnation is performed while the eggs are in the body of its parent; and he supplies the want of the organs of generation by a very strange process, affirming, that the males eject their semen always some days before the females deposit their ova or spawn; and that the females swallow this, and thus have their eggs impregnated with it. He says, that he has frequently seen, at this time, three or four females gathered about a male, and greedily snatching up into their mouths the semen he ejects. He mentions perch, and some of the *cyprini*, in which he had seen this process.

But such is the shyness of these creatures, that we cannot easily get to observe their way of copulation, and are consequently but little acquainted with this part of their natural history. The apparent organs of generation are two bags situated in the abdomen, uniting near the podex. Those in the male are filled with a whitish firm substance, called the *milt*; and in the female with an infinite number of little *ova*, clustered together, of a redish yellow colour, called the *roe*. Both these, at spawning time, are very much distended; whereas, at another time, the male organs can scarcely be distinguished from the female; nor is there any characteristic mark to ascertain the sex. It is generally supposed, that when the *ova* of fish are thrown out and deposited in the sand, the male is ready to impregnate them, and they are incubated by the heat of the sun.

It is curious to remark with what care these creatures seek for a proper place to deposit their *ova*, by swimming to the shallow, where they can better enjoy the sun's rays, and shun the voracious jaws of larger fish. The river fish, again, spawn in some creek, free from the hazard of the impetuous stream. But whether

whether this mixture be brought about in fish by the simple application of the genitals, to each other; or if both of them throw out their liquors at the same time in one place, and thus bring about the desired mixture, it is not easy to determine.

In our history of fish, we shall pursue that order, or chain of connexion, which is so strongly and firmly marked by Nature herself; and arrange them under the three grand divisions of *Cetaceous*, *Cartilaginous*, and *Spinous*, all clearly differing from each other, as well in their conformation, as in their manners, habits, and appetites. This division was originally framed by Aristotle, and has been adopted by the most rational naturalists, as well as by the bulk of mankind ever since.

1. CETACEOUS FISH:—the characters of which are, that they have no gills; have an orifice on the top of the head, through which they breathe and eject water; and a flat horizontal tail.

2. CARTILAGINOUS FISH;—characterized by their breathing through certain apertures leading to the gills, generally placed on each side of the neck, but in some instances beneath, in some above, and from one to seven in num-

ber on each part; the muscles supported by cartilages, or *gristles*, instead of bones.

3. BONY or SPINOUS FISH, includes those which have their muscles supported by bones, or spines, and which breathe through gills covered or guarded by thin bony plates, open on the side, and dilatable, or capable of being widened by means of a certain row of bones on their lower part, each separated by a thin web, which bones are called the *gill-covering rays*: an invariable character.

This arrangement fully includes every species of marine animal, of whose existence we can speak with confidence or authority. Aristotle has indeed asserted that every thing exists which is possible to exist, or the existence of which does not imply a contradiction; and it seems neither an impossibility nor a contradiction that there should be a *marine animal of the human form*, which can live in the water as we do in the air; or even that this animal should not have two legs, as we have, but should end in a tail like a fish. Those who are disposed to set bounds to the works of the Deity, may dispute the fact, but reasoning men will not presume to limit the operations of Omnipotence, suggested by infinite benevolence;

lence; or to deny the production of every sensitive being that is capable of receiving pleasure, and of enjoying a happiness suitable to its nature. However rare such animals may be, or even should they no longer exist, it does not from thence follow that they never existed: for the fact is well ascertained that there were once whole species of animals in various countries that are not now to be found there; and of this, the wolf is a trite and familiar instance in Great Britain.

It is generally believed that quadrupeds once existed much larger than we find them at present, since man has exerted his powers of destruction over the brute creation; powers which he has even extended into the midst of the ocean, and cut off enormous animals that had perhaps existed for ages. The whales, once common in the Northern seas, are not less reduced in number than in magnitude. Two centuries ago, it is well known and attested, that they were often caught of the enormous length of two hundred and fifty feet, though they are now dwindled into a race of comparatively diminutive animals, from fifty to eighty; and even of this size they appear a wonderful mass of animation:—And yet there may be
animals

animals of much greater bulk concealed in the deep, and perhaps increasing in magnitude for centuries, which we have not had opportunities of exploring. The most seemingly fabulous accounts of the ancients, concerning sea-monsters, are rendered credible by the productions of the Norwegian sea; and the *sea-snake*, or serpent of the ocean, is no longer counted a chimera. In 1756, say the historians of Norway, one of them was shot by a master of a ship; its head resembled that of a horse; the mouth was large and black, as were the eyes, a white main hanging from its neck; it floated on the surface of the water, and held its head at least two feet out of the sea: between the head and neck were seven or eight folds, which were very thick; and the length of this snake was more than a hundred yards, some say fathoms. They have a remarkable aversion to the smell of castor; for which reason, ship, boat, and bark masters provide themselves with quantities of that drug to prevent being overset; the serpent's olfactory nerves being remarkably exquisite. The particularities related of this animal would be incredible, were they not attested upon oath. Egede (a very reputable author), says, that on the 6th day of July, 1734, a large and
frightful

frightful sea-monster raised itself so high out of the water, that its head reached above the main topmast of the ship; that it had a long sharp snout, broad paws, and spouted water like a whale; that the body seemed to be covered with scales; the skin was uneven and wrinkled, and the lower part was formed like a snake. The body of this monster is said to be as thick as a hoghead: his skin was variegated like a tortoise shell; and his excrement, which floats upon the surface of the water, is corrosive, and blisters the hands of the seamen if they handle it.

“ I should be under a great difficulty, continues our Norwegian author, in mentioning the *kraken*, or *korven*, were not its existence proved so strongly, as seems to put it out of all doubt. Its bulk is said to be a mile and a half in circumference; and when part of it appears above the water, it resembles a parcel of small islands and sand banks, on which fish disport themselves, and sea-weeds grow; upon a farther emerging, a number of pellucid antennæ, each about the height, form, and size of a moderate mast, appear; and by their action and re-action he gathers his food, consisting of small fish. When he sinks, which he does gradually, a dangerous swell of the sea succeeds,
and

a kind of whirlpool is actually formed in the water. In 1680, a young kraken perished among the rocks and cliffs of the parish of Alftahong; and his death was attended with such a stench, that the channel where it died was impassable." Without entering into any romantic theories, we may safely say, that the existence of this fish being proved, accounts for many of these phenomena of floating islands, and transitory appearances in the sea, that have hitherto been held as fabulous by the learned, who could have no idea of such an animal."

"To believe *all* that has been said of the sea-serpent, or kraken, (says Goldsmith) would be credulity; to reject the probability of their existence, would be presumption."

Pontopiddan, the learned Bishop of Norway, says, the mer-men and mer-women hold their residence in the Norwegian seas, though I cannot give credit to all that is related of them by the natives. The mer-man is about eight spans long, and, undoubtedly, has as much resemblance as an ape has to the human species; a high forehead, little eyes, a flat nose, and large mouth, without chin or ears, characterize its head; its arms are short, but without joints
or

or elbows, and they terminate in members resembling a human hand, but of the paw kind, and the fingers connected by a membrane: the parts of generation indicate their sexes; though their under parts, which remain in the water, terminate like those of fish. The females have breasts, at which they suckle their young ones.

To the inquisitive reader, uninfluenced by prejudice or system, we shall state some particulars on this subject from the authority of a writer of acknowledged genius, learning and industry,—Lord Monboddo.

“ Pliny says that the ambassadors to Augustus from Gaul declared that such sea women were often seen in their neighbourhood.

“ Theodorus Gaza relates, “ that when he was in the Morea, such a woman was driven on that coast by a violent storm; that he saw her, and she was very well looked; that she sighed and seemed very much concerned when a number of people came round her; that he had pity on her, and caused the people to stand at a distance; that she profited by the opportunity; and by the help of her fins and rolling, she got into the water, and got off.”

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Qq

“ Georgius

Georgius Trapanzantius, says, " he saw from the sea-shore such a mermaid, very handsome, appear several times above water ; and in Epirus a sea-man was caught, with some difficulty, but which never could be prevailed upon to eat."

" Bartholinus, in his *Centuria Historiarum Anat. Var.* printed in 1654, informs us, that in his time one of these creatures was caught upon the coast of Brazil, and taken to Leyden, and there dissected :—he says it was in the form of a woman down to the waist.

" Ludoricus Vives declares, that in his time a sea-man was taken in Holland, and carefully preserved for two years, but at last made its escape and got into the sea.—The Portuguese speak of mermaids as a common thing on the coasts of Zofala and Mosambique.

" But passing by a cloud of witnesses, continues his Lordship, of remoter periods, we have a historian of our own times, who adds respectable confirmation to the opinion that such creatures do exist :—Mr. Valentyn, minister of the gospel at Amboyna, a person esteemed by the Dutch of Batavia, among whom he lived several years, as a man of perfect veracity ; he has collected many circumstances relating

relating to mermaids, which shew him to have been learned, curious, and industrious. After many relations from reading and hearſay, he declares what he ſaw himſelf on his voyage from Batavia to Europe, in the year 1714.

“ In 12 deg. 38 min. ſouth latitude, on the firſt day of May, about eleven o’clock in the forenoon, I, the captain, purſer, and mate of the ſhip, and a great many of the ſhip’s company, it being very calm, and the ſea ſmooth as glaſs, ſaw, about the diſtance of thrice the length of the ſhip from us, very diſtinctly on the ſurface of the water, ſeemingly ſitting with his back to us, and half the body above the water, a creature of a grizliſh or grey colour, like that of a cod-fiſh ſkin. It appeared like a ſailor, or a man ſitting on ſomething ; and the more like a ſailor, as on its head there ſeemed to be ſomething like an Engliſh cap of the ſame grey colour : he ſat ſomewhat bent, and we obſerved him to move his head from one ſide to the other upwards of five and twenty times ; ſo that we all agreed it muſt certainly be ſome ſhipwrecked perſon. I, after looking ſome time, begged the captain to order them to ſteer the ſhip more directly towards it, being ſomewhat on the ſtarboard ſide, which was done ac-

Qq 2

cordingly ;

cordingly ; and we had got within a ship's length of him, when the people on the fore-castle made such a noise, that he plunged down head foremost, and got presently out of our sight ; but the man who was on the watch at the mast-head declared that he saw him for the space of 200 yards, and that he had a very long tail."

" In 1716, in the month of January, a sea-man appeared near Ragusa, a small city on the Adriatic sea. The accounts given by the various persons who saw it, and published in the newspapers of that time, are so uniformly the same, that there is no room left to question the veracity of the story.

" But the most substantial story of all, and with which I shall dismiss the subject, is that of a sea-man that was seen by the whole crew of a French ship, off the coast of Newfoundland, in the year 1720, for two hours together, and often at the distance of not more than two or three feet. The account was drawn up by the pilot of the vessel, and signed by the captain and all those of the crew who could write, and was sent from Brest by Mounfieur Hautefort to the Compté de Maurepas, on the 8th of September 1725. The story is told with so many

many circumstances that it is impossible there can be any deception or mistake in the case;—but if it be not true, it is as plausible and impudent a forgery as ever was attempted to be imposed on the public.”

In a very scarce pamphlet, entitled, “a discourse and discovery of Newfoundland, by Captain Richard Whitbourne,” printed in 1622 we have the the following particulars relative to this disputed animal;—“As there are others that have written of these creatures, observes Mr. Whitbourne, I have presumed to relate what I have seen, and is most certainly true.

“In the morning early, as I was standing by the river’s side in the harbour of St. John’s, in Newfoundland, a surprising creature came very swiftly swimming towards me, looking cheerfully on my face; it was like a woman by the face, eyes, nose, mouth, chin, ears, neck and forehead. Round the head it had many blue streaks resembling hair, but certainly it was not hair. Yet I beheld it long, and another of my company also. At its approach I stepped back, for it was come within the length of a log pike of me, supposing it would have sprung on land to me; and by its actions
I verily

I verily believe it had such a purpose ;—but when it saw that I went from it, it did thereupon dive a little under water, and swam from the place where I had stood, often looking back towards me, whereby I beheld the shoulders and back down to the middle to be as square, white and smooth as the back of a man ; and from the middle to the hinder part it was pointing in proportion something like a broad hooked arrow.—How it was in the fore part from the neck and shoulders downwards, I could not discern.”

Not to multiply extracts or quotations on this subject, we shall only observe that such a creature as alluded to was exhibited at the fair at St. Germain, in 1759, from which a drawing was made and published by the celebrated Gautier. Another was found among the rocks in the island of Noirmartier, in June 1761, of which a particular description was given in the *Mercure de France* ; and seems to establish the fact that such animals (or monsters, if the reader pleases) do exist.

The *Syrens* of antiquity, and of the poets, are no other than the mermaids of the moderns. *Artedi*, a very sensible naturalist, supposes them to constitute a peculiar genus of cetaceous fish ;
and

and wishes for an opportunity of seeing and examining them accurately ;—though he is not attached to the belief of their existence, he candidly remarks, “ that it is better not to judge of a thing not seen, than to pronounce any thing rashly against the accounts of respectable authors.”

CETACEOUS FISH.

THIS division comprehends three genera ;

1. The WHALE.
2. The CACHALOT, PHYSETER, or SPERMACETI WHALE.
3. The DOLPHIN.

We are informed by the learned Johnson that by the term *Cetus* the antients understood every species of fish of the very large and unwieldy kind. Nature has bestowed on this class of animals an internal structure perfectly corresponding with that of quadrupeds ; and in a few, even the external parts are very fimilar :—so much so indeed, that *Linnaeus* has placed this
tribe

tribe among his *mammalia*, or what other writers call quadrupeds: Though to have preserved his chain of beings entire, he should have made his genus of *phoca* or *seals*, and that of the *tricheus*, immediately precede the whale; the seal being, in respect of its legs, the most imperfect quadruped; while the hind feet of the *manati* coalescing, assume the form of a broad horizontal tail.—This horizontal, or flat situation of the tail, in respect of the body, is peculiar to the whale, and distinguishes it from the other classes; it also enables the fish to force themselves suddenly to the surface of the water to breathe, which they are frequently constrained to do:—so often indeed, as every two or three minutes; when they also spout out through their only nostril the water they had sucked in while gaping for their prey; though they have many peculiarities in common with land animals, there still remain others which render it more natural to place them in the rank of fish:—the form of their bodies agree with that of fish;—they are entirely naked, or covered only with a smooth skin; they live constantly in the water, and have all the actions of fish.

The cetaceous tribe, like land animals, breathe by means of lungs, being destitute of
gills

gills. This obliges them to rise frequently on the surface of the water to respire, to sleep, and to perform several other functions: they have also a midriff, a stomach, intestines, liver, spleen, and bladder;—the heart also resembles that of quadrupeds: its partitions are closed up as in them, and propelling warm red blood in circulation through the body; and as a protection to keep these parts from the cold, their bodies between the skin and muscles are entirely surrounded with a thick layer of fat or blubber, analogous to the lard on hogs.—They are furnished with the organs of generation, copulate, bring forth their young, and suckle them like land animals, whom they also resemble in their appetites and affections, especially in their tenderness of attachment to their young.

But it is in the circumstances attending the propagation of their species, that the cetaceous class of fish shew an eminent and distinguishing superiority. The spinous and cartilaginous, after depositing their spawn leave its maturation to accident;—but the class we are speaking of discharge the parental office with much apparent sentiment:—they never produce above one young, or two at the most, and this the mother suckles in the manner of quadrupeds, her

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breasts being placed, as in the human kind above the navel.

The number of fins on this tribe never exceed three, viz. two pectoral and one dorsal; though in some species the last is wanting. The fins of other fish are formed of straight spines; but those of the cetaceous tribe are made up of bones and muscles; and the skeleton of one of them very much resembles the skeleton of the human hand. The peculiarity of the tail has been already noticed. Their senses appear much superior to most of the aquatic animals, particularly those of sight and hearing; and it may be remarked, that, besides their known attachment to their progeny, they are much less inimical to the human race than many of the lower orders of their companions of the deep.



Whale.



Nar Whale or Sea Unicorn.



Spermaceti Whale.

THE WHALE.

THE characters of this genus are, a horny plate on the upper jaw, instead of teeth; and a double fistula or pipe for throwing out water. The species are four, viz.

1. The *Mysticetus*, or common whale, which has many turnings and windings in its nostrils, and has no fin on the back. This is the largest of all animals; it is even at present sometimes found in the northern seas 99 feet in length; but formerly they were taken of a much greater size, when the captures were less frequent, and the fish had time to grow. Such is their bulk within the arctic circle; but in those of the torrid zone, where they are unmolested, whales are still seen 160 feet long. The head is very much disproportioned to the size of the body, being one third the size of the fish; the under lip is much

R r 2

broader

broadier than the upper. The tongue is composed of a soft spongy fat, capable of yielding five or six barrels of oil. The gullet is very small for so vast a fish, not exceeding four inches in width.

In the middle of the head are two orifices, through which it spouts water to a vast height, and with a great noise, especially when disturbed or wounded. The eyes are not larger than those of an ox, and when the chryselline humour is dried, they do not appear larger than a pea. They are placed towards the back of the head, being the most convenient situation for enabling them to see both before and behind; as also to see over them, where their food is principally found. They are guarded by eye-lids and eye-lashes, as in quadrupeds; and they seem to be very sharp sighted.

Nor is their sense of hearing in less perfection; for they are warned at great distances of any danger preparing against them. It would seem as if Nature had designedly given them these advantages, as they multiply little, in order to continue their kind. It is true, indeed, that the external organ of hearing is not perceptible, for this might only embarrass them in
their

their natural element ; but as soon as the thin scarf-skin above mentioned is removed, a black spot is discovered behind the eye, and under that is the auditory canal, that leads to a regular apparatus for hearing. In short, the animal hears the smallest sounds at very great distances, and at all times, except when it is spouting water, which is the time when the fishermen approach to strike it.

What is called *whale-bone*, adheres to the upper jaw, and is formed of thin parallel laminae, some of the longest are four yards in length. Of these there are commonly 350 on each, but in very old fish more ; about 200 of them are of a length fit for use, the others being too short. They are surrounded with long strong hair, not only that they may not hurt the tongue, but as strainers to prevent the return of their food when they discharge the water out of their mouths. The real bones of the whale are hard, porous, and full of marrow. Two great strong bones sustain the upper lip, lying against each other in the shape of an half-moon.

The tail is broad and semi-lunar ; and when the fish lies on one side, its blow is tremendous. The tail alone it makes use of to advance

vance itself forward in the water; and it is surprising to see with what force and celerity its enormous bulk cuts through the ocean. The fins are only made use of for turning in the water, and giving a direction to the velocity impressed by the tail. The female also makes use of them, when pursued, to carry off her young, clapping them on her back, and supporting them by the fins on each side from falling.

The whale varies in colour; the back of some being red, the belly generally white. Others are black, some mottled, others quite white; according to the observation of Martin, who says, "that their colours in the water are extremely beautiful, and their skin is very smooth and slippery." The outward or scarf skin of the whale is not thicker than parchment; but this removed, the real skin appears, of about an inch thick, and covering the fat or blubber that lies beneath: this is from eight to twelve inches in thickness; and is, when the fish is in health, of a beautiful yellow. The muscles lie beneath, and these, like the flesh of quadrupeds, are very red and rough. The penis is eight feet in length, inclosed in a strong sheath. The teats in the female are placed in the lower part of the belly.

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In copulation, the female joins with the male, and once in two years, as it is asserted, she feels the accesses of desire. Their fidelity to each other exceeds whatever we are told of even the constancy of birds. Some fishermen, as Anderson informs us, having struck one of two whales, a male and a female, that were in company together, the wounded fish made a long and terrible resistance; it struck down a boat with three men in it, with a single blow of its tail, by which all went to the bottom. The other still attended its companion, and lent it every assistance, till, at last, the fish that was struck, sunk under the number of its wounds; whilst its faithful associate, disdaining to survive the loss, with great bellowing, stretched itself upon the dead fish, and shared his fate.

The whale goes with young nine or ten months, and is then fatter than usual, particularly when near the time of bringing forth. It is said, that the embryo, when first perceptible, is about 17 inches long, and white; but the cub, when excluded, is black, and about ten feet long. She generally produces one young one, and never above two. When she suckles her young, she throws herself on

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one side on the surface of the sea, and the young attaches itself to the teat.

Nothing can exceed the tenderness of the female for her offspring; which she carries with her wherever she goes, and, when hardest pursued, keeps it supported between her fins. Even when wounded, she still clasps her young one, and when she plunges to avoid danger, takes it to the bottom; but rises sooner than usual, to give it breath again. In Waller's poem of the Summer Islands there is a story, founded on historical authority, to shew the maternal attachment and tenderness of these creatures; which, instead of the poetical extract, we shall abridge nearly in the words of Goldsmith:

“ A whale and her cub had got into an arm of the sea, where, by the defection of the tide, they were entirely enclosed. The people on shore beheld their situation, and drove down upon them in boats, with such weapons as could be hastily collected. The animals were soon severely wounded, and the sea tinged with their blood. After several attempts to escape, the old one forced over the shallow into the depths of the ocean. But though in safety herself, she could not bear the danger that awaited her young

young one; she therefore rushed in once more where the smaller animal was confined, and resolved, when she could not protect, at least to share its danger. The story concludes with poetical justice:—for the tide coming in, enabled both to escape from their enemies, though not without sustaining an infinite number of wounds in every part.”

The young one continues at the breast for a year, during which time, they are called by the sailors, *short-heads*. They are then extremely fat, and yield above 50 barrels of blubber.

The mother at the same time is equally lean and emaciated. At the age of two years they are called *stunts*, as they do not thrive much immediately after quitting the breast; they then yield scarce above 20 or 24 barrels of blubber: from that time forward they are called *sheill-fish*, and their age is wholly unknown.

Every species of whale propagates only with those of its kind, and does not at all mingle with the rest; however, they are generally seen in shoals, of different kinds together, and make their migrations in large companies from one ocean to another. They are gregarious

animals; which implies the want of mutual defence against the invasions of smaller, but more powerful fish. It seems astonishing, therefore, how a shoal of these enormous animals find subsistence together, when it would seem that the supplying even one with food, would require greater plenty than the ocean could furnish. To increase our wonder, we not only see them herding together, but usually find them fatter than any other animals of whatsoever element. We likewise know that they cannot swallow large fish, as their throat is so narrow, that an animal larger than a herring could not enter. How then do they subsist, and grow so fat? A certain sort of small snail, or (as Linnæus says) the medusa, galley-fish, or sea-lobster, is sufficient for this supply. Content with this simple food, it pursues no other animal, leads an inoffensive life in its element, and even is harmless in proportion to its strength to do mischief.

As the whale is an inoffensive animal, it is not to be wondered that it has many enemies, willing to take advantage of its disposition, and inaptitude for combat. There is a small animal of the shell-fish kind, called the *whale-louse*, that sticks to its body, as we see shells sticking

sticking to the foul bottom of a ship. This insinuates itself chiefly under the fins; and whatever efforts the great animal makes, it still keeps its hold, and lives upon the fat, which it is provided with instruments to arrive at.

The *Sword fish*, and a species of *Squalus*, called the *Thresher*, are, next to the human race, the most terrible enemies to the whale. The latter keeps on the back of the whale, while the former wounds it underneath in the belly, which occasions him to rise to the surface of the water, and to give the thresher an opportunity of assisting in the combat. This he does by throwing himself into an erect posture, and like a boy tumbling neck over heels, falls down with astonishing force on the back of his prey; and thus they go on till the poor whale is destroyed. The grampus, and other large fish of the cetaceous order, are attacked and destroyed by the same enemies in a similar manner.

The whale has another desperate enemy, a kind of shark, of different sizes, from six feet to eighteen in length; so voracious, that it tears large pieces of flesh from the whale, as if they had been dug with shovels.

The *fin-fish* is distinguished from the common whale by a fin on the back, placed very low and near the tail. The length is equal to that of the common kind, but much more slender. It is furnished with whale-bone in the upper jaw mixed with coarse hair, but short knobby, and of little value. The blubber in the body is very inconsiderable; it is extremely fierce, and the capture of it both difficult and dangerous, on which account it is entirely neglected by the fishermen, who, on its appearance, retire out of those seas.

The natives of Greenland, however, hold it in much esteem, as it affords a quantity of flesh which, to their palate, is very agreeable. The lips are brown, and like a twisted rope; the spout-hole appears to be split in the top of its head, through which it blows its water with much more violence, and to a greater height, than the common whale.

The *Boops*, or pike-headed whale, has a double pipe in its snout, three fins like the former, and a hard horny ridge on its back; and the belly is full of longitudinal folds. This species takes its name from the shape of its nose, which is narrower and sharper-pointed than

than that of the other whales. It has been taken on the coast of Scotland of the length of 46 feet, and 20 in circumference.

The *Musculus* has a double pipe in its front, and three fins; the under jaw is much wider than the upper one. It is frequently found along the coasts of Scotland, and feeds upon herrings.

The *Nar Whale*, *Monodon*, or *Sea Unicorn*, as it is frequently termed, differs from the foregoing species most materially by its large teeth pointing directly forward from the upper jaw, from nine to fourteen feet in length; and of all the weapons with which the marine animals are gifted, this is doubtless the most formidable. The nar whale is seldom so long as the common whale, much slenderer, and less abounding in blubber: in other respects their manners and appetites are perfectly similar; they are harmless, peaceable, and rather avoid than seek contention. They are gregarious, and seldom found alone; but so rapid in their flight, that they could seldom be taken but for those very teeth which seem intended for their chief defence; for when attacked in a crowd, they are so embarrassed and locked together

together by their tusks that some are certain of falling a prey to the fishermen.

This weapon is sufficiently singular to deserve a minute description. It is commonly straight as an arrow, about eight or ten inches in thickness, generally wreathed as we sometimes see twisted bars of iron, and is whiter, heavier, and harder than ivory, which it far surpasses in all its qualities; and the extreme length of them has induced naturalists to consider them rather as horns than teeth, though in every respect resembling the tusks of the boar and the elephant. It springs from the left side of the head, from a socket in the upper jaw, into which its root enters above a foot and a half, and darts directly forward in a line with the body.

The animal is generally found with but one of these dreadful instruments: yet in the Stadthouse at Amsterdam, as well as at Hamburgh, there is to be seen the skull of a nar whale, in each of which there are two teeth, which tends to contradict the opinion that the animal is furnished but with one; and gives room for the belief that the nar whale's wanting a tooth, is an accident in consequence of the encounters it may
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be supposed to be engaged in. Nor is this defensive weapon confined to the male sex, as both have been found armed in the same manner. The teeth which are preserved in a skull at at Hamburgh are each above seven feet long, and eight inches in circumference.

Before the art of catching whales was known to Europeans, this tooth was deemed a rarity worth extraordinary pursuit, though seldom met with but by accident, and then attributed to a wrong owner, namely the unicorn of the ancients. The error is however, at present, sufficiently well detected, and the curiosity is held in its proper degree of estimation.

With all the powers of destruction, with dreadful weapons, amazing strength, and matchless celerity, the nar whale is one of the most peaceable inhabitants of the ocean; and in consequence of his social disposition is beheld inoffensively sporting among the monsters of the deep, without making war on any living creature; and even so regardless of his own weapons, that they are generally found covered with the filth of the sea, and rather becoming an impediment than a defence.

The Greenlanders, as well as our own fishermen, call the narwhale the forerunner of the whale,

whale, for wherever it is seen, the whale is shortly after sure to follow. A circumstance arising no doubt from their both living on the same sort of food, which is the insect, or fish, (for writers are not agreed in which class it should be placed) that has already been mentioned.

In the Philosophical Transactions, No. 447 we have the description of a nar whale caught in the year 1736, in the river Oste, in Germany, four German miles from the sea. "The skin of this fish was spotted with dark brown spots upon a white ground; the epidermis was transparent, and under it was another skin, very thin and spotted, but the true skin was brown, and near an inch in thickness. The body was smooth and slippery, like that of an eel; twenty feet long, and about four feet in diameter; but the head small in proportion, not exceeding sixteen inches in length, and the eyes not bigger than a sixpence.

Among other uses for which the horn of this animal may be intended, is mentioned that of breaking the ice for the purpose of obtaining air, and which is a very probable conjecture."

END OF THE THIRD VOLUME.